

# HOME CINEMA

HIGH-PERFORMANCE SOUND & VISION

## Choice

**Exclusive!**



**Room with a view**  
Inside a stunning custom cinema, p38

# Sony Superstar

**4K VPL-VW520ES**  
Ultra HD projector  
outshines its rivals

**MEDIA MARVEL**  
Amazon's new  
Fire TV is  
red hot!

**ON TEST**

Panasonic curved TV  
Yamaha soundbar  
Freeview Play PVR  
Optoma projector  
Marantz style amp

**Surround  
sound secret**  
The BBC's latest  
trick revealed...

**We've got  
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- TERMINATOR GENISYS ■ MINIONS
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5.1 speaker system

**INSIDE** TOP-TEN GEAR GUIDE → ARCAM SOLO → 2001: A SPACE ODYSSEY  
→ BASEMENT CINEMA → SONOS MULTIROOM → BEHIND-THE-SCENES WITH DTS

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PYRAMIDAV.CO.UK  
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WEBSTRACT.CO.UK

\*Please confirm with the dealer in your area regarding Dolby Atmos, not all are upgraded yet.



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# HOME CINEMA Choice

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If you don't want to miss an issue



We pay a visit to DTS, p24

# WELCOME

The home cinema industry is at its best when it's pushing technology to its limits and delivering products that consumers feel they simply have to have – and in this issue we're auditioning many such hardware heroes. Our cover star, Sony's VPL-VW520ES, introduces High Dynamic Range playback to the home projector world with dazzling results, while **Yamaha's YSP-5600 soundbar is the world's first to support DTS and Dolby's 3D sound formats**. Or how about the Amazon Fire TV 4K streamer – a forward-thinking AV add-on that only costs £80 and should be on everyone's shopping list. Shopping list? I meant Christmas list! Black Friday is around the corner and there will soon be techie bargains to be had where ever you look. And once you've snapped up your next flatscreen TV, AV amp or soundbar speaker, check out our Gift Guide (p30) for some more Christmas treats...



*Mark Craven*  
Editor



# MENU



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The UK's most experienced TV tester cut his teeth as an early HCC staffer



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**Adrian Justins:**  
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**DYNAUDIO**



# BULLETIN

→ **NEWS HIGHLIGHTS** SONY 4K laser projector is 'the ultimate home cinema solution'  
 SONOS Multiroom audio specialist unveils new speaker calibration system NVIDIA 4K-capable Android console hits UK RETRA Could the TV industry face backlash over 4K specs? NEWS X10 The hottest news stories in bite-sized chunks EVEREST 3D Mountaineering thriller climbs onto DVD and BD **AND MORE!**

## Handy Solo

Arcam Solo Movie → [www.arcam.co.uk](http://www.arcam.co.uk)



The nature of a one-box home cinema system typically leads to a trade-off in AV performance in order to deliver a suitably stylish and compact piece of kit. Arcam, however, has been ripping up the rulebook for the best part of a decade with its Solo Movie – and this third-generation update looks likely to continue that trend. Priced around £2,000, the new Arcam Solo Movie marries its BD/SACD/DVD drive to five-channel Class G amplification, Bluetooth with aptX streaming, 4K video upscaling, onboard DTS-HD MA and Dolby TrueHD decoding and UPnP video streaming.

### HCC ONLINE...

Looking for breaking AV news, blogs, features, & reviews? For your daily fix visit us at [www.homecinemachoice.com](http://www.homecinemachoice.com) Follow us on Twitter @hccmag

# 4K on a grand scale

Sony VPL-VW5000ES → [www.sony.co.uk](http://www.sony.co.uk)



'The ultimate home cinema solution' is how Sony Professional bills its new VPL-VW5000ES – and the feature set of this high-priced beast certainly backs up that claim. Aimed squarely at the specialist largescale theatres of the custom install market, the projector combines 4K SXR panels with a new-for-Sony laser light

source. High-end talents include HDR compatibility, a 5,000 Lumens brightness rating, support for the pro-level DCI-P3 colour space and lens position memory. This revolutionary video-chucker is expected to retail for around €65,000 (roughly £47,750) when it hits the UK and Europe early next year.



## Meridian Audio DSP



Meridian Audio's two new DSP speakers are now available to order. The DSP5200.2 and DSP7200.2 (pictured) both employ an advanced high-efficiency composite dome tweeter, proprietary EBA (Enhanced Bass Alignment) tech and three built-in 75W amplifiers for a maximum output level of 116dB at 1m. Prices start at £6,000 for the DSP5200.2 and £17,000 for the DSP7200.2 (bespoke colours are available as an optional extra). Matching centre channel Digital Active speakers are also available.

www.meridian-audio.com

## Sony Atmos AVR



Sony used the recent CEDIA expo in Dallas to

unveil its first Dolby Atmos-compatible AV receiver. Currently expected to start shipping in the US next Spring for around \$2,800, the STR-ZA5000ES will also offer DTS:X functionality. The 'next-generation' 9 x 130W flagship counts six HDCP 2.2-compliant HDMI inputs and two outputs, an eight-port Ethernet switch, web browser setup and ADCAC auto room equalization among its pro install-friendly talents.

www.sony.co.uk

## Acer Full HD projector



Acer has given its home cinema projector range a

boost with the launch of the V7500. Available now for around £630, the new model supports 100 per cent of the sRGB colour gamut and employs the brand's ColourPurity and LumiSense+ intelligent light optimisation tech for improved image quality. The 3D-capable V7500 also supports WirelessHD, allowing users to 'break free from cables' with the aid of Acer's wireless dongle. Other specs include a 1.36x zoom and ExtremeEco mode for boosting lamp life.

www.acer.com

# Sonos plays with calibration

Multiroom specialist debuts new app and redesigned flagship speaker

Sonos has unveiled a room calibration system for its popular Play speakers, along with a replacement for its flagship speaker, the Play:5. The calibration method, dubbed TruePlay, uses the microphone built-in to a smartphone or tablet in conjunction with speaker-emitted test tones.

Director of Platform Strategy Mike Papish told HCC that people place their speakers in all kinds of places where the acoustics are adversely affected. Sonos wanted to make it possible to rebalance the sound in as easy a way as possible: 'Since the software works with an iPad or iPhone's built-in microphone no additional hardware is required.'

A short video on the app (rolled out as part of the Sonos 6.0 update) demonstrates the procedure, which requires little more than the ability to wave an iPad around like swatting a fly in slow-mo as the speakers deliver various frequency sweeps. Settings are then saved and can be selected from the app. An Android version is in the works.

HCC also clapped eyes and ears on the new Play:5, demoed by Sonos' Sound Experience Leader, Giles Martin. The refreshed Play:5 speaker (£250) has been completely redesigned and is three times more powerful than the original. It can be used singularly or in a pair, and placed horizontally or vertically with the angle of the tweeters readjusting accordingly,



**Mike Papish:** 'Since our calibration system works with an iPad's built-in microphone, no additional hardware is required'

while DSP retunes the delivery. Says Martin: 'The array produces a soundstage that is much wider than expected from a single speaker, yet retains precise separation of vocals and instruments.'

Unfortunately, it looks like being a long and winding road to hi-res compatibility for Sonos owners, with Papish unenthusiastic about 24-bit tunes: 'Only a tiny amount of content can be heard by a tiny amount of listeners in exceptional circumstances. Upconverting 16-bit to 24-bit gives nothing special.' He says that Sonos is waiting for more artists to adopt 24-bit recording. 'We don't just want to check boxes.'

### Playing with DTS?

One box that home cinema enthusiasts would like to see ticked, however, is the ability for the PlayBar to decode DTS as well as Dolby Digital. Any chance of that happening soon? 'We are looking at it,' concedes Papish. 'It gets requested a lot. Dolby is more commonly used across the spectrum. Maybe we will do it at some stage.'

## PLAYLIST...

Team HCC spins up its disc picks of the month

### San Andreas (All-region BD)

It may not be subtle, but this disc's powerful and immersive Dolby Atmos soundtrack will leave you convinced that your own house is falling down around you.



### Jurassic World (All-region BD)



Detailed imagery and aggressive seven-channel sonics ensure that this dino-sequel delivers plenty of monstrous AV thrills.

### The Enfield Haunting (R2 DVD)



This TV drama functions as both a chilling scare-fest and a poignant study of broken families. Perfect viewing for a cold Winter night...

### Hidden Agenda (Region B BD)



Ken Loach's superior political thriller arrives on BD backed up by some excellent new bonus features.

### Tower of Evil (Region B BD)



A surprisingly decent hi-def outing for this supremely silly (and fun) 1972 British proto-slasher.



The refreshed Play:5 speaker costs £250

## EXTRAS...

Small items that could make a big impression

### Harry Potter: The Character Vault



The movies may have stopped, but the cottage industry in Harry Potter-related books is still going strong. This £25 hardback features detailed essays about the major characters from all eight of the films – each accompanied by a magical assortment of concept art, behind-the-scenes photos and publicity stills.

### LEGO Doctor Who



This long-awaited fan-suggested set finally materialises in stores on December 1 and consists of the TARDIS console room, two Daleks, and minifigures of the Eleventh and Twelfth Doctors (Matt Smith and Peter Capaldi), Clara Oswald and a Weeping Angel. Yours for £50.

### Some Kind of Hero



Written by film scholar Matthew Field and 007 super-fan Ajay Chowdhury, this hefty £25 tome charts the history of James Bond on the silver screen courtesy of more than 100 previously unpublished interviews with the stars, directors, writers and studio executives.

# Taking on Apple and Amazon

NVIDIA's new 4K Android TV box wants to make your PC obsolete

**NVIDIA says its debut media streamer, dubbed the SHIELD, will 'change the world'. A tad optimistic perhaps, but the slim green-lit set-top box, which runs the Android TV platform, is certainly the best-specified OTT device we've seen yet.**

The SHIELD is powered by a sprightly Tegra X1 mobile processor, and utilises a 256-core NVIDIA GPU with 3GB RAM and a 64-bit CPU. NVIDIA claims this makes it 34x faster than Apple TV, 25x faster than a Roku 3, and 8x faster than Amazon's Fire TV.

The console supports both HEVC and VP9 4K/UHD codecs, as well as audio streams up to 7.1-channel over HDMI. It's also compatible with high-res audio content up to 24-bit / 192 kHz. Additional connectivity includes two Ethernet ports, twin USBs, microUSB and a microSD card slot. 2.4 and 5GHz Wi-Fi, plus Bluetooth, are integrated.

The device supports Netflix 4K, and has a single HDCP 2.2-compliant HDMI output. It also runs popular media players Kodi (formerly XBMC) and Plex. However, the big difference between it and other network rivals is that SHIELD also streams PC games at 1080p60 from NVIDIA's remote servers, using the brand's GeForce Now on-demand cloud gaming subscription service.

GeForce Now launched with a 50-strong library, including recent

hits *The Witcher 3* and *Resident Evil: Revelations 2*. Games can be bought and played instantly from the online game store, with NVIDIA's cloud-gaming servers allow users to start playing, in HD resolution, within 30 seconds as there's no digital file download required. Remarkably, HCC found there was no overt lag when playing, although we didn't get to trial any first-person shooters at the unit's London launch party, which might have betrayed less-obvious latency issues.

'The X1 processor can deliver 4K TV shows and movies, plus music and gaming with 1080p at 60fps – we think we're going to change the world,' declared a bullish Tim Bender, vice president of NVIDIA's World Consumer Group.

### Agents of Android

SHIELD's Android TV interface is largely the same as that already seen on Sony and Philips TVs, albeit customised with an NVIDIA content hub. However, the box is able to navigate the Android UI at a speed not previously seen on TV implementations of the platform.

Two versions of the SHIELD console are available, both of which ship with a wireless controller that uses low-latency Wi-Fi Direct. The 16GB version sells for £150, with the 500GB SHIELD Pro, better suited for those looking to use it as a media storage device, at £230. An optional SHIELD remote control costs £40. GeForce Now is offered free for the first three months on SHIELD devices, and then £7.50 per month.



NVIDIA's console delivers 4K streaming and PC-quality gaming

# Denon offers 'blockbusting 3D sound'

Premium AV receiver should go down a storm with fans of next-gen audio formats

Denon's new AVR-X6200W supports Atmos, DTS:X and Auro-3D



It's been a little over a year since Denon released its first AV receivers with support for Dolby Atmos. Since that time the object-based audio format has become a key feature on the brand's AVR-X Series models, and the new premium AVR-X6200W is no exception.

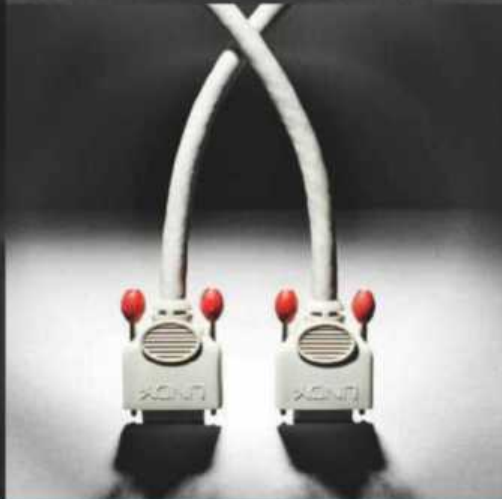
Aimed at the 'most demanding home cinema enthusiast,' this model will also benefit from the addition of DTS:X and DTS Neural:X upmixer support via a free firmware upgrade. An Auro-3D

upgrade is also available, albeit for a fee. The 9.2-channel AVR-X6200W also promises to deliver 205W per channel, with various proprietary technologies (including Denon High Current Transistors and Denon Link HD Connection) being employed to help improve audio performance.

The AVR features HDCP 2.2 support facilitating 4K/60Hz full-rate pass-through with 4:4:4 Pure Colour sub-sampling on all HDMI inputs. ISF certification also ensures a full suite of advanced video calibration tools.

The AVR-X6200W is available now in a choice of silver and black finishes, priced around £1,800.





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## DIARY

Our calendar ensures that you don't miss out...

## → NOVEMBER

**23: The Hobbit: The Battle of the Five Armies – Extended Ed.**  
The all-new 174 minute cut of the final part of Peter Jackson's fantasy epic arrives on Blu-ray and 3D Blu-ray alongside a mountain of extras.  
[www.warnerbros.co.uk](http://www.warnerbros.co.uk)

**27: Bridge of Spies**  
Steven Spielberg directs this Cold War-era thriller that opens at UK cinemas today. The film stars Tom Hanks as a lawyer sent to negotiate the release of US pilot Gary Powers, shot down over the Soviet Union.  
[www.disney.co.uk](http://www.disney.co.uk)



**30: Ant-Man**  
Marvel's smallest hero leaps into action on DVD, Blu-ray and 3D Blu-ray. Let's hope that the DTS-HD MA 7.1 mix is a step-up in quality from that of the *Avengers: Age of Ultron* Blu-ray...  
[www.disney.co.uk](http://www.disney.co.uk)

## → DECEMBER

**04: Krampus**  
Get into the festive spirit at your local multiplex with director Michael (*Trick 'r Treat*) Dougherty's horror-comedy about a dysfunctional family under attack by a Christmas demon.  
[www.universalpictures.co.uk](http://www.universalpictures.co.uk)

**04: Victor Frankenstein**  
Daniel 'Harry Potter' Radcliffe and James McAvoy star in this retelling of Mary Shelley's gothic horror from the perspective of doctor's assistant Igor. Shuffle down to the cinema today to see if it offers electrifying entertainment.  
[www.fox.co.uk](http://www.fox.co.uk)

**14: Fantastic Four**  
Find out if Fox's superhero flop really deserved the scorn it was greeted with at cinemas when the *Fantastic Four* reboot hits DVD and Blu-ray.  
[www.fox.co.uk](http://www.fox.co.uk)

**17: Star Wars: The Force Awakens**



While it pales next to the release of a new issue of *HCC* (see below), today also sees the long-awaited return of a certain sci-fi series to the bigscreen. Have you booked your ticket yet?  
[www.disney.co.uk](http://www.disney.co.uk)

**17: HCC #255**  
The next issue of your favourite home cinema magazine hits the stands today packed with hardware tests, features, outspoken opinion and software reviews.  
[www.homecinemachoice.com](http://www.homecinemachoice.com)

## TV industry fears 4K backlash

Trade body warns of class action lawsuits due to changing standards

The slow evolution of 4K/Ultra HD is causing the TV industry sleepless nights. It might even open the door for class action lawsuits from disgruntled consumers. That's the view of Howard Saycell, CEO of trade body RETRA.

The organisation, which represents independent electrical retailers in the UK, says ongoing uncertainty around 4K TV and the staggered roll-out of the UHD Phase II specification is confusing both buyers and retailers. Compatibility with HDR content is the latest upgrade to 4K screens, the implication of which will be largely lost on the average consumer.

'I have to say I'm scared,' reveals Saycell. 'I'm scared for the retailers, I'm scared for the manufacturers and I'm scared for the customers – because there are a million 4K TVs going out there this year, and I don't know how they have been propositioned and sold in store.'

Over the past three years, a variety of 4K-specified screens have come to market. While the majority of big-brand models sold in 2015 feature some level of HDMI 2.0 connectivity and HDCP 2.2 copy protection compliancy (required for 4K streaming solutions like the Amazon Fire TV 4K box and upcoming Ultra HD Blu-ray players), many first- and second-generation TVs do not.

'I don't know what the consumer believes they've purchased,' says Saycell, 'or if it has been sold on the basis that it is future-proof.'

The CEO also suggests that consumers who see UHD demo channels in store – TV dealers now have access to a 4K test channel delivered via Freesat – will be 'potentially' disappointed when they take their TVs home.

'I believe that 4K is a massive opportunity for the industry, but there are so many questions. Really and truthfully, these need to be answered. There's an awful lot of money being parted with, potentially by consumers without the knowledge about what they're actually buying. I find that quite frightening. Consumer legislation is such that buyers can bring class actions of miss-selling; we as an industry have a massive educational job to do.'



**Howard Saycell:** 'Let's not kid ourselves, the TV industry does not want to find itself in a Volkswagen Audi Group situation'

In a reference to the Financial Conduct Authority, Saycell adds: 'There's a concept called TCF – Treat Customers Fairly – and quite frankly if you don't tell customers exactly what they are buying into you could have that accusation levelled at you, with all the ramifications that could go along with that. Let's not kid ourselves, we don't want a Volkswagen Audi Group situation. Let's stop talking about the art of the possible, what may happen, and let's tell the customer what their product does today.'

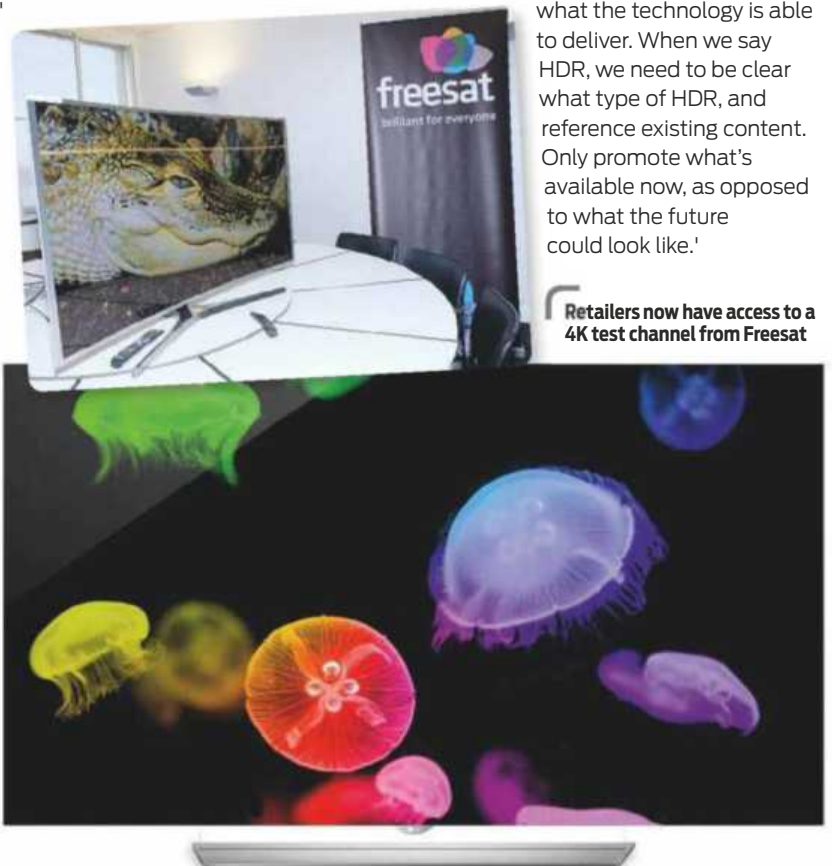
## LG responds

Rob Taylor, Home Entertainment manager for LG, says he shares some of Saycell's concerns, but argues the ability to firmware-update connected products solves many problems.

'The focus must be to keep on communicating to end users, to let them know that a product can adopt the latest standard when it is ready,' he says. 'That's our responsibility, I believe. We can't rely on the retailer to communicate every individual message in every way. Backwards compatibility is a major point, but also we must be open and transparent about

what the technology is able to deliver. When we say HDR, we need to be clear what type of HDR, and reference existing content. Only promote what's available now, as opposed to what the future could look like.'

**Retailers now have access to a 4K test channel from Freesat**





This month's top 10 news stories in handy, bite-sized chunks...



## 1 Sony screens add YouView

November 4 finally saw Sony make good on the promise it made at the start of the year about bringing YouView to all of its 2015 Bravia Full HD and 4K/Ultra HD TVs. The service was added via an automatic update and can be found in Sony's 'Home' screen. 'YouView was the natural choice of partner due to the intuitive design and interface and seamless user journey across a huge content library,' declared Sony UK big wig John Anderson. For more info on YouView and compatible TVs, head over to [www.sony.co.uk](http://www.sony.co.uk).

## 2 R.I.P. Ron

Eureka Entertainment founder and Director Ron Benson passed away on October 19 following a long struggle with cancer. A greatly loved and admired figure in the UK home entertainment industry, Benson started off running a video rental library before launching the iconic world cinema mail order store Mr Benson's World of Entertainment. His love of film lives on through Eureka and its Masters of Cinema imprint.

## 3 Would you pay for YouTube?

YouTube has launched a new subscription channel called YouTube Red (don't, whatever you do, get it confused with Redtube...). Only available in the US at present, priced \$9.99 a month, the channel offers an ad-free mix of exclusive videos from high-profile vloggers and feature films.

## 4 Counterfeit projector lamps extinguished

A recent court action against Just Lamps, which supplied counterfeit Epson projector lamps across Europe, has resulted in a successful prosecution. Epson claims that the fake lamps 'presented a serious risk to public health and safety.'

## 5 Sky reports Q1 boost

Sky's first quarter results for the year show that the satcaster pulled in 937,000 new subscribers during the period, along with some 133,000 new broadband subscribers in the UK. Meanwhile, Sky Atlantic saw an impressive 70 per cent year-on-year increase in UK viewers.

## 6 The Force is strong with Sky

Sky and Disney have signed a new deal giving the satcaster first UK broadcast rights to the studio's upcoming slate of films. The agreement will see Sky screen the likes of *Star Wars: The Force Awakens*, *Inside Out* and the upcoming slate of Marvel movies before they are available on any other online subscription service.

## 7 DisneyLife to launch in UK

Staying with Disney, the studio is set to launch its own streaming service in the UK (before expanding across Europe in 2016). DisneyLife will cost £9.99 a month and allow users to stream Disney animated classics, the entire Pixar catalogue, 1,000s of Disney Channel TV episodes, and 100s of books and albums. However, *Star Wars* and Marvel movies will not appear on the service.

## 8 Price hike

Users of the Amazon-owned LOVEFiLM disc rental service have taken to social media to complain about price rises that will come into effect in February 2016, essentially doubling the cost of using it. You could almost think that Amazon is trying to push users towards its streaming service instead...

## 9 Pure Audio adds Atmos

The first Pure Audio Blu-ray to feature Dolby Atmos hit the streets at the end of October. The Choir of King's College, Cambridge's 1615: *Gabrieli in Venice* comes on two discs – an SACD hybrid disc and a Pure Audio Blu-ray platter offering Dolby TrueHD 5.1, 24bit/96kHz LPCM 2.0 and Dolby Atmos presentations of the music.

## 10 BFI announces movie subscription platform

The BFI has launched a new movie subscription service dubbed BFI Player+. Priced at £4.99 a month, (with a 30-day free trial for all users) the service offers around 300 'carefully selected titles' for film fans to stream, curated by the BFI's world-leading experts. Also on hand is film critic Mark Kermode, who will be making his pick of one unmissable 'film of the week' with an exclusive introduction every Friday.



## PREMIERE

What's happening in the world of TV and films...

### Die Hard still not dead

Director Len Wiseman has been hired to helm the sixth *Die Hard*, a 1979-set prequel to the rest of the series that will reveal how New York City cop John McClane 'became a die hard kind of guy'.

### Monster mash-up



Legendary Pictures and Warner Bros. have confirmed that *Godzilla* and *King Kong* are set to duke it out for a second time (having first come to blows back in 1962). Scheduled for release in 2020, this beastly brawl will follow in the gigantic footsteps of *Kong: Skull Island* and *Godzilla 2*, which hit cinemas in 2017 and 2018 respectively.

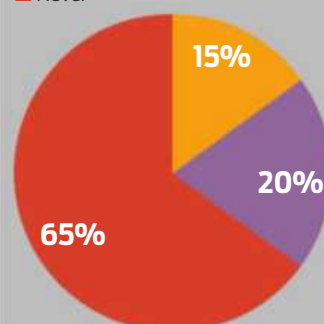
### Mini-heroes assemble

Marvel Studios has announced a new addition to its Phase 3 lineup of superhero movies: *Ant-Man and the Wasp*. In order to accommodate the film's July 6, 2018 release date, *Black Panther* has been moved up to February 16, while *Captain Marvel* has been pushed to March 8, 2019.

## WE ASKED...

How often do you spend money on streaming or downloading films from a VOD service?

■ Frequently 
 ■ Sometimes 
 ■ Never



Results from [www.homecinemachoice.com](http://www.homecinemachoice.com)  
Go online for more polling action

# Peak achievement

Everest 3D → Universal Pictures → All-region BD & R2 DVD



Short of heading to the Himalayas and climbing the world's tallest mountain yourself, it's hard to imagine anything that rivals the dizzying 3D imagery served up in this epic true story about the death of eight climbers on Mount Everest in 1996. As well as its vertigo-inducing stereoscopic

visuals, *Everest 3D* also promises a thrilling Dolby Atmos soundtrack that should help the flick scale new heights in AV performance. Director Baltasar Kormakur's snow-capped caper is due to debut on DVD, Blu-ray and 3D Blu-ray on January 25. Order it with some Kendal Mint Cake...





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view Epson as their first choice of projector.<sup>1</sup>

Find out more at [www.epson.co.uk/CLO](http://www.epson.co.uk/CLO)



1. Aug 2015: Epson blind test between Acer H6510BD, BenQ TH681+, Epson EH-TW5200, Optoma HD26 and ViewSonic PJD7822HDL.  
For further info on the test and on the 3x brighter colours data please see [www.epson.co.uk/CLO](http://www.epson.co.uk/CLO)  
2. Survey conducted by Futuresource Consulting Limited for the period from 2001 to 2015.

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**S**ony's VPL-VW520ES marries HDR playback to its native 4K spec. Is it the most exciting home cinema PJ around?







**EVERY NOW AND** then a product lands that changes the game. One that delivers class-leading picture quality while bringing something new to the home cinema technology party. Sony's new VPL-VW520ES projector is such a product. And trust me, it's quite hard trying to write a review with your jaw hanging permanently open. It's messy.

The selling point of the VW520ES is essentially this: for £8,800 it gives you both a native 4K resolution – something no other brand has yet been able/bothered to manage on a home cinema projector – together with high dynamic range (HDR) playback.

HDR, for the uninitiated, is the new end-to-end picture format that captures a greater luminance range than you get with standard video formats, resulting in pictures that look brighter, more colourful and more contrasted – provided they're seen on displays capable of reproducing their extra picture information. I've seen enough HDR to know that so long as it's done right, it's capable of having a huge impact on a viewing experience. More so than the introduction of 4K resolution.

### More of everything!

Helping the VW520ES 'do HDR right' are some eye-catching specifications. The projector's dynamic contrast ratio (achieved via processing and a dynamic iris system) is rated at a colossal 300,000:1 – 50 per cent higher than the contrast of its predecessor, the VW500ES [HCC #243]. There's a maximum brightness rating of 1,800 lumens from its 280W lamp, too. This represents a modest increase of 100 lumens. While it won't stack up in a numbers game against 'high-brightness' rivals and isn't suited to mega-sized home theatres, it's actually an impressive figure – consider that yesteryear's JVC HD1 peaked at 700 lumens and you can see how the market has developed.

Colour, meanwhile, benefits from Sony's Triluminos system for boosting saturations and expanding the dynamic range, while the projector carries myriad tools for adjusting pictures to suit your tastes/content. These include gamma correction, colour correction, colour temperature adjustments and a range of colour space settings (stretching from the 'old' BT.709 standard up to BT.2020). Also, perhaps controversially, you get a host of video processing systems taking in everything from noise reduction and motion handling to contrast and colour enhancements.

It's important to stress that the BT.2020 setting does not mean that the VW520ES can reproduce the full BT.2020 colour range. Or even the DCI P3 standard come to that. But it does mean the projector has the ability to emulate such settings as closely as its Triluminos and processing technologies allow. Explain's Sony's projector guru Yoshi Koike: >

**John Archer**  
can still remember  
the days when he  
used to get  
excited by home  
cinema projectors  
with component  
video inputs and  
1,280 x 720 res



The HDR-ready VPL-VW520ES claims a 300,000:1 contrast ratio and 1,800 lumens brightness

'BT.2020 mode is there to emulate colour primary (colour points) to be the same as BT.2020, within the optical colour space of the projector. Those colour points are calibrated, so colour reproduction is more accurate.'

The home for the VW520ES's cutting-edge chipper is pretty large at nearly half a metre wide. Don't be mistaken: this sort of thing is more at home permanently installed in a cinema room than perched on a coffee table in a day-to-day living space. That said, Sony has made the projector available in glamorous white as well as black and it wears its bulk nicely, thanks to its arced upper edge and circle of gold highlights that taper back to the centrally-mounted recessed lens. And there are even a couple of 'bright' picture settings offered to suit relatively casual environments. As far as I'm concerned, however, if you've spent the best part of nine grand on a projector you'd be nuts not to put it in a properly blacked-out setting.

Installation aids include fully motorised focus, 2.1x zoom and optical image shifting, the latter available in both horizontal (+/- 31 per cent and vertical (+85/-80 per cent) directions. There should be no need to resort to image-distorting keystone correction here. The throw ratio extends from 1.38:1 to 2.83:1. And as with previous Sony high-end beamers, there's a lens memory function that allows you to store zoom/focus settings for different aspect ratios.

Connections contribute to the VW520ES's prowess. The two HDMI side-mounted inputs include support for HDR-friendly 10-bit playback – albeit only at 24fps. With 4K material running at 50 or 60fps the supported bit-rate drops to 8-bit. Since the vast majority of films are still mastered and released on Blu-ray in 24fps, the projector should be able to handle the extra colour information of most of the 10-bit content likely to be coming in the future.

The way projected images can fill your field of vision makes them the natural home for 3D playback. It seems a pity, then (and

somewhat tight-fisted) that Sony doesn't include any of its active shutter 3D glasses for free. A friendly dealer might chuck some in for nowt. Luckily, a pair of Samsung's latest 3D glasses I had lying around worked fine.

I was keen to kick off testing of the new Sony by trying out its 4K HDR capabilities. I'd had a mouthwatering play with these during a hands-on session at the IFA show back in September, which featured footage of *The Black List* and a remaster of *The Amazing*

**'With HDR content, the VW520ES engineers a picture performance that feels like a brave new AV world'**

*Spider-Man 2* and I couldn't wait to experience the same sorts of delights again in the comfort of my own room. As it turned out, though, I did have to wait; finding a way to play HDR via the VW520ES turned into a rather painful rigmarole involving the loan of one of Sony's FMP-X5 media players. Basically, Ultra HD Blu-ray hardware just can't come fast enough. But to say the hassle was worth it would be the understatement of the year.

The VW520ES's delivery of HDR content is, essentially, mindblowing. Partly because it does – just – have enough brightness in its locker to deliver a sense of HDR's expanded luminance range, but mostly because it does a sensational job of delivering the extra colour range that HDR content brings to the table.

Sony-supplied footage of a Japanese mother and daughter in traditional dress enjoying a colourful birthday party on a balloon-filled boat [*sounds fun – Ed*], plus a gorgeous LG-created HDR 'travelogue' clip, are delivered – thanks in no small part, I suspect, to Sony's Triluminos technology – with remarkable colour punch and richness. The bold reds and golds of kimonos and the

glossy blues, greens and yellows of the balloons all enjoy extraordinary intensity and an enhanced sense of tonal definition, as well as standing out strongly against the dense greys and blues of the river and sky. This is so far in advance of the colour response you get from even the most masterfully produced standard dynamic range projector that it's as if you've died and gone to an AV heaven.

And there's nothing in the least bit gaudy, garish or forced about this extraordinary upsurge in colour performance. In fact, HDR pictures look much more realistic as well as far more eye-catching and attractive. Have we finally reached a point where we can actually get to see on a video display what the world really looks like? Rather than a 'compressed' version of reality designed to fit within the limitations of established previous generations of display gear? Well, if we haven't quite got all the way there yet, we're certainly a lot closer.

It's not just the explosive colours and slightly expanded luminance that make HDR on the VW520ES special, though. There's a tremendous depth to images here, with an expanded sense of contrast and more detail in dark areas. HDR pictures look solid and three-dimensional, somehow more textured than SDR 4K footage.

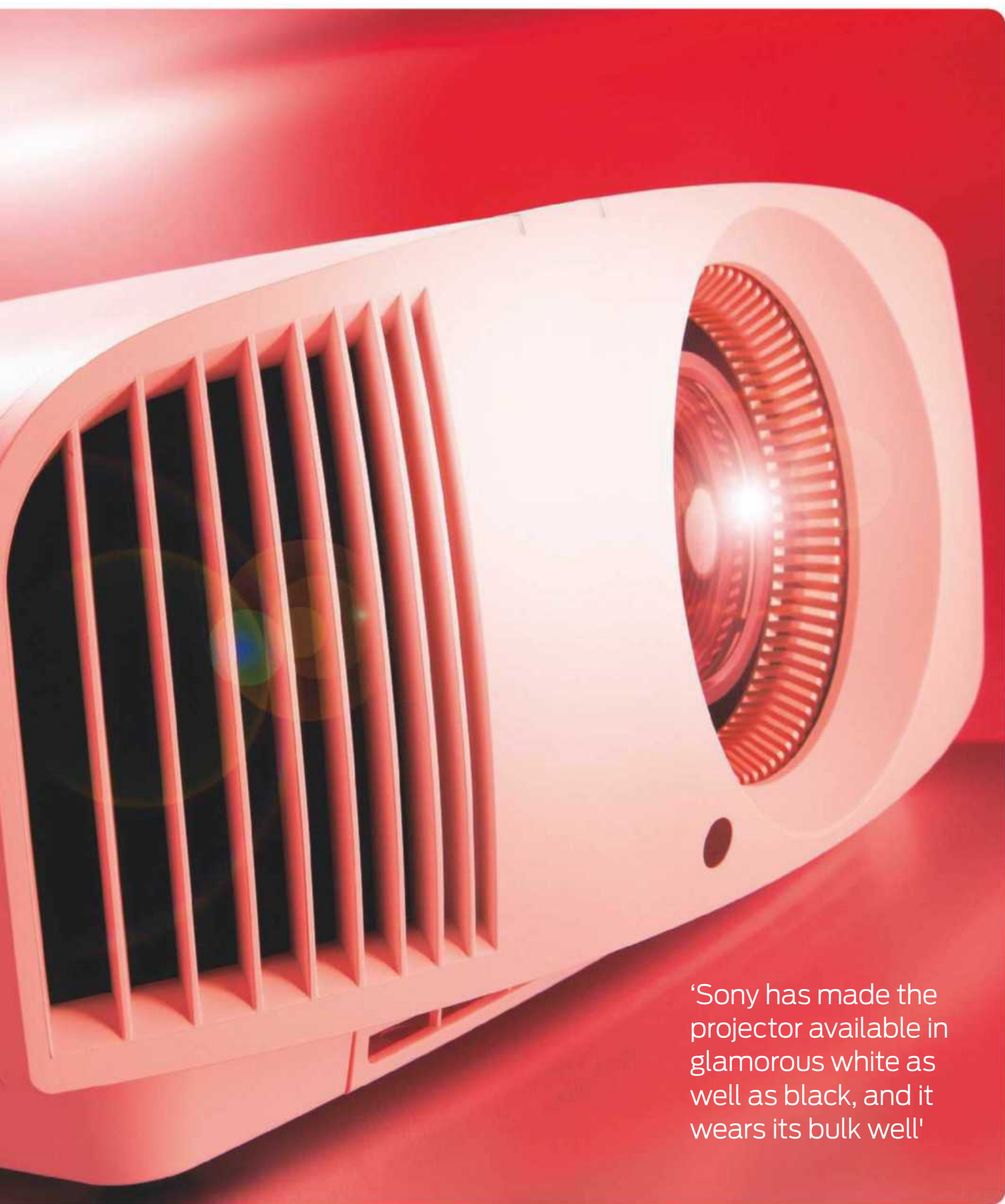
The bottom line is that with native HDR content, the VW520ES engineers a picture performance that feels like a glimpse of a brave new AV world. This makes the £8,800 ticket look good value when you consider that the ultra-expensive likes of Runco and SIM2 aren't even doing 4K yet.

### Standard bearer

Forget HDR, though. The VW520ES needs to also shine with today's content. And this is exactly what it does. Standard dynamic range 4K clips of *Transformers* and the *Total Recall* remake, together with a variety of other 4K demo reels (including my much-spoiled 60p footage of the last World Cup football tournament) all look exquisite. The VW520ES proves what a difference a native 4K







'Sony has made the projector available in glamorous white as well as black, and it wears its bulk well'

resolution can make at the sort of large image sizes a reasonably bright projector can deliver. Detail reproduction is first-rate, while the best contrast performance Sony has ever delivered from a home theatre PJ helps delineate the subtle light and tone shifts that separate the 4K wannabes from the real 4K deal.

The upscaling engine manages to remap difficult, grainy HD content like the Blu-rays of *300* and *Harry Potter And The Deathly Hallows Part 2* to the projector's trio of 4K chips (and, yes, these are 4,096 x 2,160) without them coming across as noisy or in any way processed. This impressive uprezzing has been a part of the Sony stable since the first 4K model – the VPL-VW1000ES – landed back in 2012, and remains a stunning achievement. Unlike the TV world, there's no hiding place for processing unpleasanties with projectors.

And great kudos is due to the advances Sony has made with this projector's light engine. As mentioned, images look slightly brighter than those of its forebear; they also feature a more expansive and convincing contrast range underpinned by a rich, believable black level, with detailing retained in dark scenes to stop them seeming crushed, hollow or flat.

The contrast processing and dynamic iris systems show signs of improvement, clearly boosting contrast but with greater subtlety than before. Even the Motionflow feature is Einstein-intelligent. Especially the True Cinema mode, which does a cinematic job of reducing judder without you really noticing.

### Going back to Pandora

Firing up *Avatar 3D* on Blu-ray (for old time's sake) reveals the VW520ES to be excellent fun in stereoscopic mode. The HD 3D image appears impressively detailed, the projector's strong contrast performance helps it deliver a great sense of space and depth, and while there is a definite drop-off in brightness (as per usual with projectors), the Sony's healthy core brightness ensures 3D images have credible colours and engaging dynamism. Cameron's tree-hugging extra-terrestrials look good enough to make you feel like you're part of their world, and the overall experience will have you digging out other old favourites for a re-run.

An issue with 3D is that there's more crosstalk ghosting around than I'd like;

The remote offers control of focus and zoom, picture presets and more



enough, at any rate, to leave largescale scenes like Jake's debut flight on an Ikran in *Avatar* looking soft and blurry in places in pronounced contrast to the sharpness the PJ typically delivers.

And there are other facets of Sony's movie maestro that could be improved. For starters, you have to be careful with some aspects of its setup to get the best from it. For instance, to deliver the best combination of image stability, contrast and light/colour balance,

I found I needed to leave the Dynamic Control feature off, the Advanced Iris set to around 72, and the contrast enhancer set to Low. There are a lot of adjustments here and it pays dividends to familiarise yourself – and experiment – with their powers. A professional calibration might be in order if you have any spare cash left after purchasing.

I'd also recommend using the lamp set to 'high' to fully unlock the VW520ES's cutting-edge capabilities. This may not be possible if your viewing room is quite small as it causes an upsurge in the projector's fan noise (versus

**'Detail reproduction is first-rate and the contrast performance is the best that a Sony PJ has yet delivered'**

the almost silent running of the 'low' lamp setting). It will also impact the PJ's lamp life, which is rated at 6,000 hours in low. The VW520ES takes an unusually long time to warm up and cool down, too.

Does it have rivals? From from what I've seen of JVC's upcoming new projectors (again at the IFA 2015 tech show) those models will almost certainly outgun the VW520ES where black level response is concerned. Of course, none of those JVCs offer native 4K playback. And I wonder if the Sony has quite enough brightness to unlock the absolute last drop of picture quality from the more aggressive HDR formats we're likely to see; in this regard a souped-up LED-lit TV may hold all the cards.

Yet these are minor bumps in the VW520ES's road to next-generation glory. Even without HDR its 4K pictures are spectacular; throw in HDR on top and you've got a jaw-dropping sub-£10,000 cinema projector and a more than commendable upgrade on the VPL-VW500ES ■

### SPECIFICATIONS

**3D:** Yes. Active shutter

**4K:** Yes. 4,096 x 2,160

**CONNECTIONS:** 2 x HDMI; USB service port; Ethernet port; 2 x 12V trigger ports; IR input; RS-232C

**BRIGHTNESS (CLAIMED):** 1,800 lumens

**CONTRAST (CLAIMED):** 300,000:1 (dynamic)

**DIMENSIONS:** 496(w) x 195(h) x 467(d)mm

**WEIGHT:** 14kg

**FEATURES:** SXRD projector system; 6,000-hour claimed maximum lamp life from 280W UHP lamp on 'low' lamp mode; 26dB claimed fan noise; multiple picture presets; Motionflow motion processing; Reality Creation processing; optical image shifting (vertical: +85%/80%; horizontal: +/-31%); motorized zoom (2.1x) and focus; HDR playback; Triluminos colour system; 60-300in screen size; 3,840 x 2,160 at 24p (10-bit), 50p/50p (8-bit); 1.38-2.83:1 throw ratio

### HCC VERDICT



### Sony VPL-VW520ES

→ £8,800 approx → [www.sony.co.uk](http://www.sony.co.uk)

→ Tel: 020 7365 2413

**HIGHS:** 4K pictures look amazing; HDR pictures look even more amazing; good setup flexibility; good price for what's on offer

**LOWS:** Some crosstalk with 3D; runs rather noisily in high lamp mode; a little fiddly to set up perfectly; slow to warm up/cool down; there are brighter PJs out there

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★



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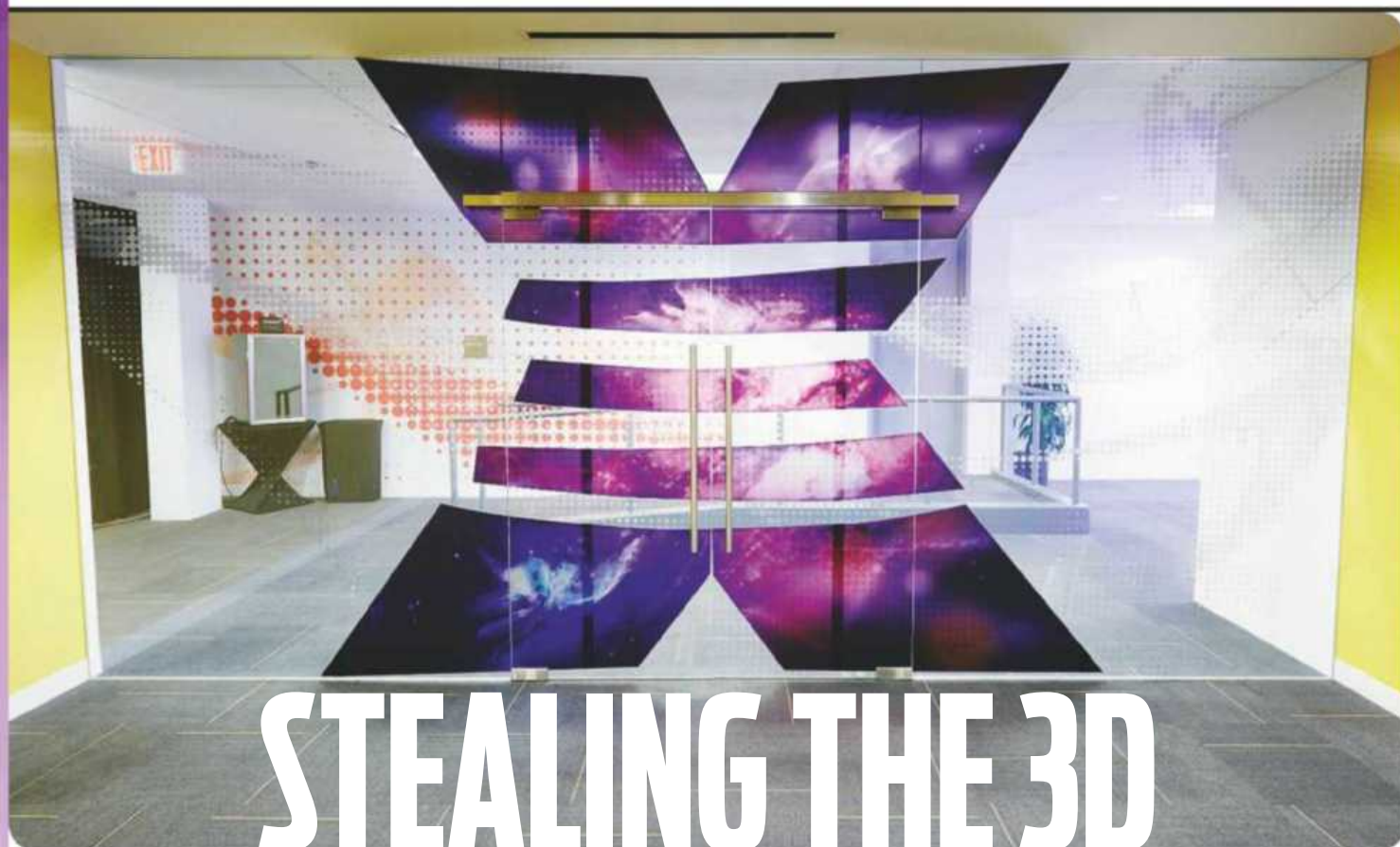


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# STEALING THE 3D AUDIO CROWN?

A revolution in home cinema sound is under way. Yet while Dolby Atmos has led the charge, DTS:X wants to muscle in on the show. **Martin Dew** reports

**ONCE AGAIN, FILM** fans find themselves in the midst of an audio format war. Long-time rivals Dolby and DTS are slugging it out in both commercial theatres and home cinemas with new object-based sound systems. Dolby's Atmos format matured first, launching at multiplexes in 2012 and in home setups two years later. Now, though, DTS:X is threatening to steal its thunder.

I'm at the impressive DTS headquarters and research laboratories in Calabasas, California, a city just off Route 101 as it snakes westwards out of Los Angeles. Jordan Miller, director, global communications, greets me in the company's clean, white, super-stylish lobby, and leads me through a maze of corridors and open-plan cubicles to the company's hallowed 'Listening Room'. Once there, in come David McIntyre, vice president, corporate strategy and development, Dave Casey, senior director, product development, Fred Maher, audio testing and mixing specialist, and vice president of cinema initiatives, Bill Neighbors. For my visit, DTS:X is high on the agenda, but first, a quick recap...



**The DTS HQ in Calabasas, California**  
— where the home cinema audio magic happens...



## A different approach

Like Dolby, DTS pioneers digital surround sound technologies for theatrical and domestic media playback, but the approach to, and application of, its suite of products and licences was – and is – quite different to those of its competitors. Indeed, the idea of shipping a 'double inventory' of 35mm film prints and CD-Rom discs to cinemas all over the world in 1993 seemed counter-intuitive at the time. But it was the robustness and economy of the system that saw it adopted on a massive scale theatrically, and led to a consumer brand recognition that only a few betting men would have predicted at the time. Roll forward to the noughties and the introduction of DTS-HD Master Audio on Blu-ray and, now in 2015, DTS:X next-gen audio for cinema and home, and you have a picture of a company that is firmly riveted to the leading edge of acoustic innovation.

'The Jurassic Era' is how Neighbors fondly refers to the formative phase of DTS. It was July 11, 1993, when DTS 5.1 digital sound thundered into cinemas with the release of *Jurassic Park*. 'It was a big deal,'





reveals Neighbors. 'People would wait until, say, 10pm to see the film in the DTS screen.'

The opening of *Jurassic Park* was big, to say the least. Installations topped out at 867 screens on the opening night. 'After two years or so, the worldwide footprint of all the other three competitors combined was 250 screens,' says Neighbors. 'Because of the approach that we had taken with the dual inventory and CD-Rom, the promise was

**'We've never been a hardware or equipment company – for us, hardware tools are more of a means to an end'**

that this was affordable and easily installed into theatres.' But it wasn't all plain sailing at first for this relatively small, new-kid-on-the-block company: 'We were scrambling to ship our American-made product into Europe. We didn't have a European address, and everything else. We were making it up as we went along. We originally set up an office in Belgium for distribution inside Europe, but then we moved to Twyford, Berkshire in the UK, until we divested that division.'

Audio geeks will now recognise Twyford as the home of Datasat. Bill explains that the advent

of digital cinema – the shift away from analogue 35mm film to digital files played out on 2K and 4K projectors – meant that the requirement for a proprietary compressed audio format was no longer relevant in cinemas. The industry shifted to the use of uncompressed PCM 5.1 audio. DTS was, after all, predominantly a technology licensing business, and not a hardware manufacturer. 'When we saw [digital cinema] coming down the pipe, the non-cinema related businesses were doing quite well; the licensing businesses and our patent portfolios were growing. So we divested the (cinema) company and Datasat purchased it. They were actually still delivering CD-Rom discs to cinemas until July of this year!'

Adds David McIntyre: 'A format went away, and it really shifted the digital cinema business to being about playback hardware. We've never been a hardware or equipment company. For us, hardware tools are more of a means to an end to deliver an experience, which fundamentally comes from algorithms in the form of codecs. The real key was that shift to uncompressed audio – not 'owned' by anybody.'

In 2009, the hot buzz in the industry turned to object-based and immersive audio. As McIntyre explains, DTS reached out to SRS and subsequently acquired the company, primarily for its post-processing business, but also for its 'funny little



**The Listening Room features two arrays to replicate both a commercial theatre and a domestic setup**

project' known as MDA, or Multi Dimensional Audio. MDA promoted object-based audio in any theatrical or home application, and the DTS team knew the market was ready. 'Our traditional place in the audio chain, for at the least the last ten years, has been home or consumer delivery, whether it's on a disc, or a stream or a broadcast. What became apparent very quickly though was that ProTools mixers – and the entire chain in the industry – knew how to handle 5.1 or 7.1 PCM, but the moment they went to immersive audio, and the concept of objects in particular, there was no such thing as PCM anymore. It was literally undefined, and it was being left to proprietary formats. We were kind of heading back to the '90s, so to speak.'

DTS realised that its newly-acquired MDA asset included many of the building blocks which would allow PCM audio to support objects, and a 'simple and open' platform was created. McIntyre is keen

**'DTS:X's Multi-Dimensional Audio file will adapt logically to the freedoms or restrictions of any given system'**

to point out that height information has nothing to do with objects, and that the two just happened to be developed and come to market at the same time. As object-based audio is pertinent to room layout specifically, any waveform needs to include PCM plus metadata, the latter providing time and position for any individual sound cue. A free, non-licensed ProTools plugin known as MDA Creator was also developed to give mixers and authors a chance to work without the added pressure of leasing a 'box or engineer'. MDA is already an industry standard and is recognised by the ITU and SMPTE.

So how does DTS:X differ from competitors' systems? Neighbors explains that cinema room speaker layout is not as stringent: 'The MDA track gets created with an MDA Creator tool, delivered

on a DCP (Digital Cinema Package), and played back in DTS:X theatres. A theatre has to have a renderer, which means it has to have an ability to read the metadata and render it. The biggest differentiation, as far as actual practicality, is that a DTS:X room has to meet certain speaker configuration guidelines on how they are installed, based on their coverage, dispersion angles and SPL, and the idea is to make sure that everything is covered.' The in-built flexibility means that DTS:X can be easily tailored to an existing cinema's configuration. 'As cinemas aren't all shaped and sized the same, this leads to a lot of economies of scale for the cinema owner,' says Neighbors. 'As long as you meet the guidelines, then you can give your room a compelling immersive experience.'

This also means that a DTS:X track can be played back in a Dolby Atmos cinema, as long as it has a DTS renderer, although Neighbors concedes that this particular situation hasn't yet arisen. Another nifty leg-up for DTS is its ability to move a single file to any room in a multiplex – whether it's a 400- or 200-seater – as long as there is the DTS config file and renderer in the processor for each house.

#### **Rolling out in theatres**

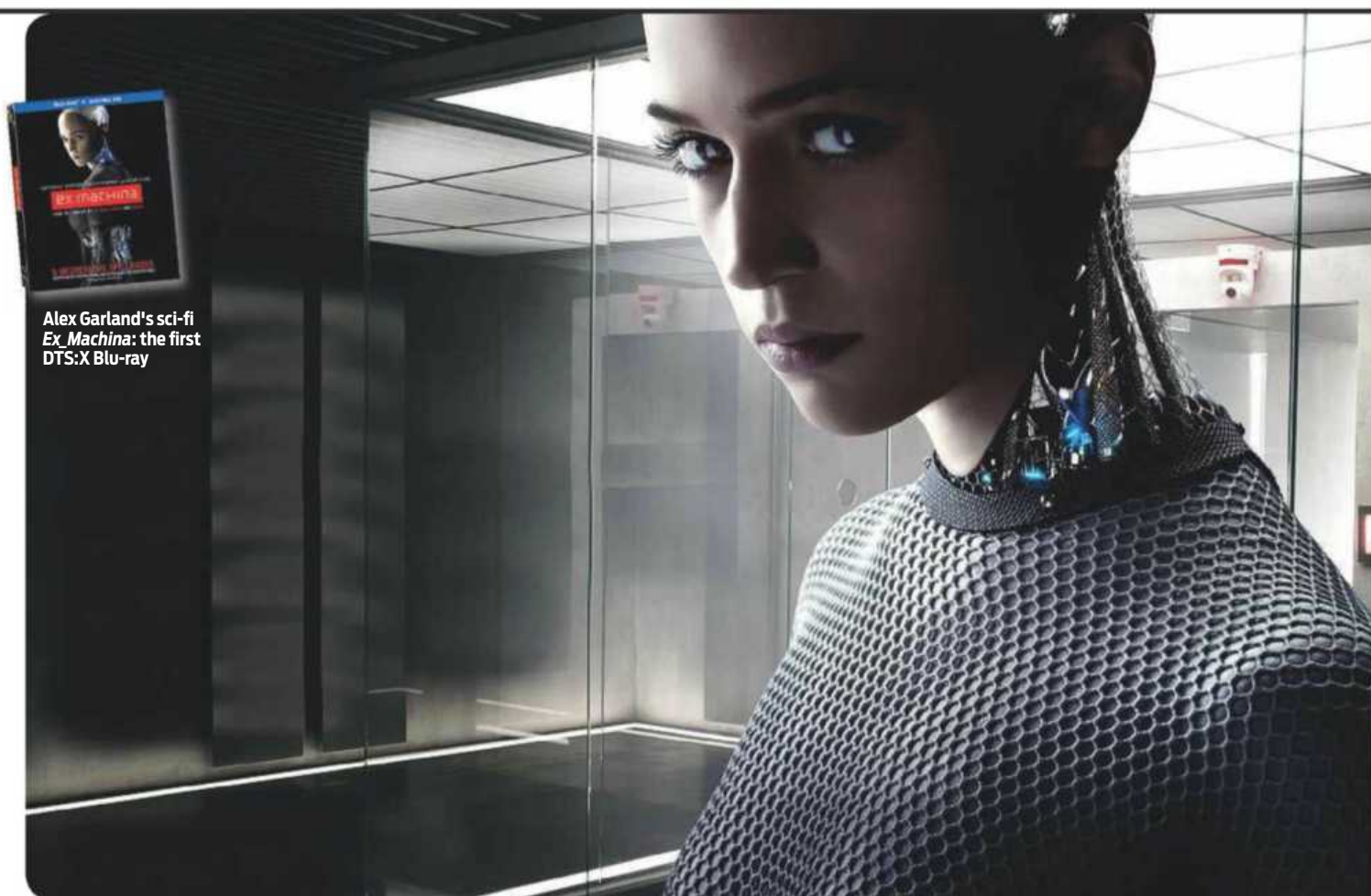
At the time of writing there are currently 25 DTS:X rooms, either open or under construction, 18 of which are in North America. DTS expects to see further adoption in the UK and Europe early next year. DTS:X will typically feature in the premium rooms in a multiplex, and the company encourages its clients to promote the brand and its immersive sonic experience. Neighbors assumes that most exhibitors will continue to market their large format, high-octane rooms with their own in-house branding, but he recently met an exhibitor of a midsize US chain who confirmed he was ditching his own 'silly' label in favour of the DTS:X emblem.

Fred Maher talks me through the key setup characteristics of DTS's own listening room. Two arrays of speakers, each making up the outer sphere and inner sphere, mimic the aural credentials of both a commercial cinema room and home cinema respectively. Fifty-eight Vienna

The Altitude<sup>32</sup> from Trinnov Audio can run a 32-channel DTS:X (and Dolby Atmos) system







Alex Garland's sci-fi *Ex Machina*: the first DTS:X Blu-ray

Acoustics speakers are partnered with amplifiers from Anthem, and Colorado-based Ayre. The 22.2 surround specification from Japanese broadcaster NHK, a subset of the outer sphere, acts as a basis for cinematic system monitoring, while 21 inner sphere speakers and two subwoofers comprise the home cinema system. Critical listening and codec testing are, not surprisingly, the chief purposes of this highly controlled environment.

Following an astonishing demonstration of the 'outer sphere' professional cinema system with a clip of *Robocop* from the DTS 2015 Demo Disc Blu-ray, Maher suggests we get a bit 'nerdy'. He throws up the MDA Creator tool interface onto the screen: 'That's an 11.1 config file right there. You can see that each speaker has a location, an azimuth and elevation. It's based on trigonometry. Imagine the world is a gigantic geodesic dome and the speakers are at certain points at triangulated intersections.' McIntyre adds that 'the point of sound is always somewhere in a triangle.'

He then demos the scalability of the content creation tool with a realistically irritating buzzing fly, as he 'tells' the panner that it now only has two speakers in the room. It's an impressive, intriguing demo, and I can support the affirmation that 'the intent is well-preserved with just two speakers.'

Maher acknowledges that such a configuration would rarely exist in the real world, but the point is that the MDA file will adapt logically to the restrictions or freedoms of any given room layout. The next step is as simple as clicking a button called 'Export MDA'. According to McIntyre, 'That bundles up everything you had in your session into

## WHERE ARE THE DISCS?

The rollout of DTS:X is certainly starting slowly...

Some early adopters of Dolby Atmos were frustrated by the limited availability of titles in its first year (although recent months have seen a noticeable surge in Atmos BDs).

DTS:X looks set to provide a similar experience. The only studio confirming software so far is

Lionsgate – following *Ex Machina*'s launch in July, it has confirmed a US DTS:X release for *American Ultra* on November 24. It



has also released *Sicario* in theatres with a DTS:X mix, and confirmed that *Hunger Games: Mockingjay Part 2* will offer the same, so it's likely domestic versions will follow suit.

an MDA file. That MDA file can then be directly played in a DCP package.'

The conversation turns to home cinema matters, with Dave Casey picking up the baton. 'Traditionally what would happen is this mix would go through a second revision where it's remixed and nudged around for the home. So the creative can use that exact same MDA file and monitor it for a nearfield experience.' A massive uncompressed MDA file is subsequently prepared for consumer distribution and 'the output of the encoder actually creates the DTS:X bitstream that goes onto a Blu-ray disc.'

I have a DTS:X demonstration of the home system via the inner sphere of speakers using a current generation Blu-ray player. Material is also culled from the 2015 Demo Disc, with Gabriel Grapperon's ingenious short film, *Locked Up*, and Run River North's music video, *Monsters Calling Home*. Casey explains that the same mix will not only accommodate the current maximum of 32 speakers (as with the Trinnov pre-amp used here), but is also backwards compatible with two-year-old AVRs maxing out with 7.1, and 12-year-old AVRs with 5.1 digital surround.

In the last few months, the company has announced DTS:X adoption by some 20 consumer brands and, according to Casey, will 'hit nearly 100 per cent of the market that serves the AVR/surround processor space.' DTS:X is starting to appear on high-end models from each of those brands, and will shortly trickle down into the more attainable middle tier, with the lowest price points showing at around £500. According to McIntyre, 11.1 channels with four height speakers 'is really more or less where people

are capping out, just based on the physical realities of the home.' Casey also stresses that the adaptability of their immersive technology is 'less about 7.1.4, and more about 11 channels in any configuration you can come up with.' For those who have already purchased upward-firing Atmos speakers to avoid carving holes in the ceiling, DTS is adamant that it supports 'whatever speakers you have.'

DTS is also clear that DTS:X requires no unique AVR setup, as distinct from any other competitor's immersive audio system. The company is 'happy' to talk to a manufacturer about what it thinks is best practice, but it respects and supports whatever UI is designed and applied.

### Taking the Blu-ray world by storm

Currently, 94 per cent of all BD titles include DTS-HD Master Audio. When asked how DTS managed to achieve such high market penetration, McIntyre claims that there are a host of advantages to using its codec, which relate to workflow, time, cost efficiencies and, ultimately, the strength of the DTS 'core'. Consumers with S/PDIF-fed legacy devices enjoy the superior 1.5 megabit DTS HD core track over Dolby Digital, so 'they get that quality difference with no end penalty when it comes to the lossless solution.'

As for DTS:X titles appearing on Blu-ray, the only confirmed release at the time of writing is *Ex Machina*. However, not regularly discussed or understood by consumers is the comparatively meagre amount of space available for audio even on a 50GB BD disc. And the problem is not going away with UHD BD, despite its much larger capacity. 'Believe it or not,' says McIntyre, 'BD 50s for things like high-end Disney or Warner films still have space problems even for 7.1 audio. As we go to UHD BD, the first ones will be 66GB discs mostly, and so they've added all this video and they want to add all this audio and, yes, they've got 32 per cent more space, but it goes away really fast.'

Of the many media platforms that immersive audio might inhabit, I am particularly keen to find out

if DTS:X music Blu-ray discs will start to appear on the web pages of our favourite online retailers. Although everyone in the room concurs that titles will emerge in the future, Jordan Miller is also quick to establish, 'As of right now, the emphasis has been on headphone (Headphone X). There are two ways to go about it: we can create bespoke content with immersive sound in mind, or take existing audio and remix it in Headphone X.' He expands on a fascinating project that the company pursued with the band Imagine Dragons, and its recent X-mixed album *Smoke and Mirrors*.

**'The market penetration of DTS-HD Master Audio is high – around 94 per cent of all Blu-ray titles include the codec'**

On the group's latest tour of the US, audience members were invited to observe a gallery installation with Headphone X song mixes accompanying particular pieces of art.

If readers have not experienced the Headphone X demo on the [www.dts.com](http://www.dts.com) website, I highly recommend they do so. In the Listening Room, Fred Maher plays me the same test signal available on the website, in which an announcer's voice informs the listener of the placement of each of 11 channels in a home cinema setup, but over the inner sphere of home speakers only. He then asks me to listen to the same test, this time with a pair of \$70 headphones, and the test sounded identical. I could have sworn that the signals were still coming from the external speakers, and not from the cans. We perform the test again with a clip from the film *Divergent* – once again, indistinguishable results between phones off/phones on. Was DTS talking to VR (virtual reality) and AR (augmented reality) headset manufacturers? A resounding 'yes' on both fronts: 'All the big players.'

Maher explains that the breakthrough with DTS Headphone X technology is achieving what he calls 'room convolution'. Music mixes are monitored on speakers at a prescribed distance from a recording engineer, but then we listen to the same mix with headphone speakers literally right on our head. Consequently, the illusion is one of music 'inside' our heads, rather than 'out there' where it should be. He continues: 'It's taking the concept of binaural and making it a creative tool. Artists are going berserk for it.' Jordan Miller adds, 'I can literally feel the pianist is six feet away from me on the right. And then there's a back-up singer behind the piano.'

### All that matters

The story arc of my DTS visit went from commercial cinema to pocket audio – it's certainly a company with ambition. But for home AV fans, all that matters is whether its DTS:X format can come to market with enough titles to make a system upgrade a no-brainer. Fingers crossed... ■

Headphone X is another string to DTS's sonic engineering bow





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Room photography courtesy of Admit One Home Cinema.



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# 'All I want for CHRISTMAS...

Christmas = treating yourself to some system add-ons.  
**Team HCC** draws up a wishlist of AV accessories, movie memorabilia, software, books and more



## Unleash your pinball fantasies

Got space in your movie den for a pinball table? Love *Game of Thrones*? Have a relaxed attitude to money? If you answered 'yes', 'yes' and 'yes' then put this flipper-fest from US manufacturer Stern Pinball on your Santa list. The Pro model sells for around £5,000 – step up to the Premium Edition at £7,300 for additional game features including a motorised animated dragon and a revised layout. Westeros royalty will want the £8,500 Limited Edition model, though, as it offers a certificate of authenticity, an autographed playfield, numbered plaque and laser-cut detailing.

[www.sternpinball.com](http://www.sternpinball.com)



## Get retro gaming

Those with fond memories of tapping away on the keys of a ZX Spectrum will appreciate the ZX Vega, which sees the computer reborn for the 21st century as a handheld, USB-powered TV peripheral. It comes pre-loaded with 1,000 titles (including cult classic *Back to Skool!*), and more can be added via the microSD card slot (plenty of titles are legally available from 'net download site World of Spectrum). Control is achieved via the smattering of on-body buttons; there's also a virtual onscreen keyboard, ideal for text-based games. The cost of reliving your childhood is £100.

[www.retro-computers.co.uk](http://www.retro-computers.co.uk)

## Welcome to the party, pal

If you're cajoled into attending a Christmas bash where festive jumpers are demanded, rock up in this *Die Hard*-flavoured sweater available from Dark Bunny Tees. Screen-printed on the front with 'Now I have a machine gun, ho-ho-ho', and on the back with a cunningly-taped handgun, it even comes in a Nakatomi-branded box. Available colours are red, green, white, black/yellow and black/red. Price is £25.

[www.darkbunnytees.com](http://www.darkbunnytees.com)



### The Bronze Age of DC Comics

Following on from its earlier tomes charting the Golden and Silver eras, Taschen's third heavyweight hardback about the history of DC Comics turns its attention to the period between 1970 and 1984. This tumultuous era saw a major shake-up in the world of superheroes as they became fallible and the storylines darker. As with the previous volumes, this oversized 400-page book is packed with beautiful reproductions of comic covers and panels from the time – not bad for just £35.

[www.taschen.com](http://www.taschen.com)

### Doctor Who: Impossible Worlds

Few TV shows have been explored in as much depth and detail as *Doctor Who*. However, this gorgeous hardback from BBC Books (£35) finds areas left to explore as it rummages inside the Beeb's Art

Department and returns with a wealth of previously unseen concept art and technical drawings for both the original series and its 2005 revival.

[www.eburypublishing.co.uk](http://www.eburypublishing.co.uk)

### The Making of Stanley Kubrick's 2001: A Space Odyssey

First available as part of a £900(!) limited edition boxset, Piers Bizony's exploration of the sci-fi mind-boggler is now available on its own for £50. Exhaustively researched, this monolith-shaped book packs rare imagery from the Kubrick archives and a comprehensive account of the film's production.

[www.taschen.com](http://www.taschen.com)

### Ultimate Star Wars

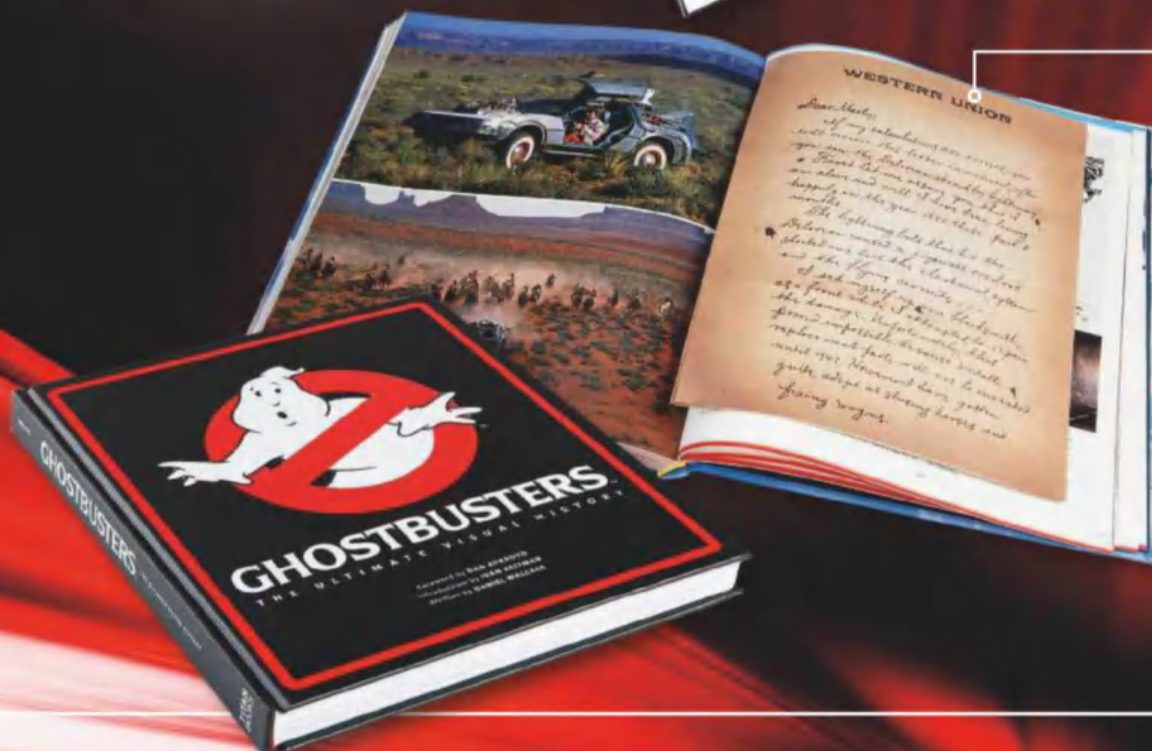
Do you know the names of all of the members of the Max Rebo Band? Or the distance Cloud City floats above Bespin's gassy core? If not, then get this geeky fact-packed £35 tome to brush up on all-things *Star Wars* – and perhaps grab it early as a prep-sheet in the run-up to *The Force Awakens* hitting your local multiplex.

[www.dk.com/uk](http://www.dk.com/uk)

### Back to the Future: The Ultimate Visual History/ Ghostbusters: The Ultimate Visual History

Titan Books lifts the lid on the making of two 1980s movie classics in these *Ultimate Visual Histories*. Priced £35 each, these in-depth books are treasure troves of interviews, production art, photography and other ephemera connected to the films – *Back to the Future* fans even get a copy of Doc Brown's letter to Marty McFly! (pictured). Sequels and spin-offs (including theme park rides, cartoons and comics) are featured too.

[www.titanbooks.com](http://www.titanbooks.com)







## Indulge your inner audiophile

Chord Electronics takes aim at smartphone junkies wanting improved sonics – whether from streaming services or hi-res downloads – with its latest oddball-named DAC. The £400 Mojo (a car-crash between Mobile and Joy, we're told) is a portable headphone amplifier/DAC boasting illuminated coloured balls for operation and support for formats ranging from MP3 to FLAC, WAV and DSD. Connections include USB, 3.5mm and optical – plus dual headphone outputs – and the Mojo's internal battery is rated to last 10 hours.

[www.chordelectronics.co.uk](http://www.chordelectronics.co.uk)

## Snatch a saving on a soundbar

Q Acoustics' Media 4 soundbar deservedly picked up our Soundbar of the Year award in 2014, and now the UK audio marque has announced it's reducing the soundbar's recommended price tag from £400 to £330, making it even more desirable. Employing dual 2.75in BMR drivers and an onboard woofer, the Media 4 sounds great out of the box, with excellent stereo imaging and taut, nuanced bass. Add one to your flatscreen telly.

[www.qacoustics.co.uk](http://www.qacoustics.co.uk)



## Light up your movie room

Officially licensed by Lucas Arts, these British-made *Star Wars* prints from Illuminated Canvas will add glamour to a Tatooine-themed den. There are five to choose from – Yoda in comic book style, and Darth Vader and R2-D2 in both comic and photographic flavour. Each incorporates LEDs to highlight aspects of the design, powered by AA batteries rather than mains power.

Pricing ranges from £40 for a 40x32cm canvas to £56 for a larger (60x40cm) version. [www.illuminatedcanvas.co.uk](http://www.illuminatedcanvas.co.uk)

## DVD & Blu-ray boxsets



### Alfred Hitchcock Presents: Seasons 1-7 The Complete Collection

'TV has brought murder back into the home where it belongs' said Alfred Hitchcock in 1966. And now, thanks to this whopping 35-disc DVD set put together by Fabulous Films, you can savour all seven seasons of the Master of Suspense's murderous anthology series.



### Undertaker: The Streak 21-1

Grown men playfighting or high-octane televisual entertainment? Certainly, WWE isn't for everyone. However, if you are a fan then this limited edition coffin-shaped Blu-ray boxset giving you a ring-side seat for The Undertaker's 21-bout winning streak (and eventual loss) will float your boat.



### The X-Files: Complete Seasons 1-9

Not cheap (£190 approx), but this shelf-bothering boxset does stock 55 Blu-rays, 1.78:1 hi-def transfers of every episode, DTS-HD MA 5.1 audio and heaps of extras including commentaries, deleted scenes, and featurettes. Just ignore the fact that Season 10 is coming in January...



### The Beatles: 1+

While £34 can't buy you love, it can at least buy you twenty-seven chart-topping singles (plus videos) from The Fab Four collected on a double-CD/double-BD set. 5.1 audio mixes created at Abbey Road Studios and new 4K restorations sweeten the deal, not to mention the accompanying 124-page hardcover illustrated book.





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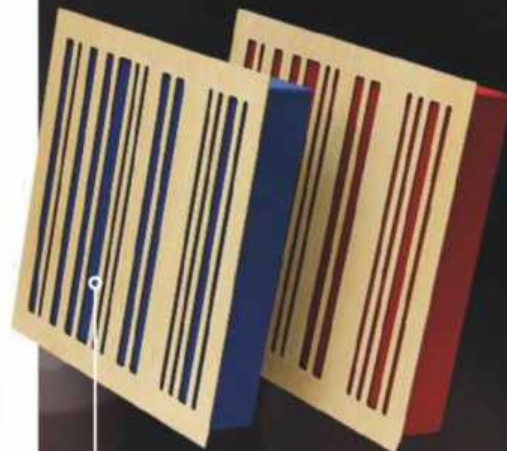
## Pimp your media streamer

The second-gen Now TV box (reviewed last issue) is getting a limited edition Christmas makeover – choose from various themes including reindeer, polar bears and Fungus the Bogeyman (pictured) for a dash of colour. The price remains at an appealing £15. [www.nowtv.com/christmasbox](http://www.nowtv.com/christmasbox)

## Dance around your desk

KEF's wireless Muo speaker can trace its heritage back to the brand's flagship Muon floorstanders, albeit without the mad price tag. Designed by Muon creator Ross Lovegrove, the compact Muo sells for £299 (rather than the £140,000 p/p of its big brother), and features miniaturized Uni-Q drivers and an auxiliary bass radiator.

Hookup options are apt-X Bluetooth (plus NFC pairing) and 3.5mm input. Two Muos can be paired together to either deliver authentic stereo or 'Dual Connect' functionality. There are five finishes to choose from. [www.kef.com/muo](http://www.kef.com/muo)



## Treat your room to some acoustic treatment

Managing the flow of soundwaves in your cinema can improve the multichannel experience by eliminating standing waves and reflections. The new Alpha Wood series from GIK Acoustics combines diffusion with low-frequency absorption, thanks to mathematically-sequenced slots in the real-wood face and rockwool back panel. Various colour options for each 595mm x 595mm panel are available – £376 gets you a pack for four. Mounting kit is supplied. [www.gikacoustics.co.uk](http://www.gikacoustics.co.uk)

# DVD & Blu-ray boxsets



## The James Bond Collection

This bumper BD set houses all 23 EON-produced Bond movies (so no 1967 *Casino Royale* or *Never Say Never Again*) and features a space for you to add *Spectre* when it's released next year. Light on bonus goodies, but at £65 it's also light on your wallet – and includes a UV code for digital downloads of the 007 capers.



## The Shôhei Imamura Masterpiece Collection

Eight of the Japanese director's films are collected together in this surprisingly affordable £35 boxset. Included are *Vengeance is Mine*, *The Ballad of Narayama*, *Profound Desires of the Gods*, *The Insect Woman*, *Nishi-Ginza Station*, *Pigs & Battleships* and *Stolen Desire* (all BD & DVD), plus *A Man Vanishes* (DVD only) and a CD of digital booklets and rare stills for each movie.



## Madmen: The Complete Collection

The definitive release of the award-winning drama, this Amazon.co.uk-exclusive boxset is packed with goodies. Not only do you get all 92 episodes on 22 Blu-rays, there's also a bonus hi-def disc with over three hours of exclusive extras, headed notepaper, art cards, an office plan, a reproduction of Don's iconic 'Why I'm Quitting Tobacco' letter and more!



## The Vampire Diaries: Season Six/The Originals: Season Two

It may have started life as a *Twilight*-wannabe, but *The Vampire Diaries* has changed into something much more satisfying over the years – and the recently released sixth season is its most shocking yet. Grab it on BD along with Season Two of its supernatural spin-off *The Originals*.





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# Festive flicks on disc

Give your home cinema a dose of Christmas cheer with some tinsel-tinged entertainment.

**Team HCC** picks ten titles that major on boxing, trigger-happy cops and extra-terrestrials

## BATMAN RETURNS

Tim Burton's bravura follow-up to *Batman* sees Gotham shrouded in snow and The Penguin seeking to kidnap the city's first-born children and drown them in the sewers. Hardly *It's a Wonderful Life*, then. Intertwined with this macabre plot are evil tycoon Max Shreck and his former secretary-turned-supervillain Catwoman, not to mention an army of rocket-bearing penguins. Naturally, the Caped Crusader sorts the mess out just in time to swap Christmas gifts with Alfred.

**Get it:** Take your pick from the standalone Blu-ray or the *Batman: The Motion Picture Anthology 1989-1997* boxset



## ROCKY IV

In this OTT sequel, Sylvester Stallone's stout-hearted pugilist seeks to avenge the death of his friend Apollo Creed by fighting the dastardly Russian (Dolph Lundgren) who killed him on the canvas. The date for the decisive matchup is Christmas Day – and Rocky trains by lugging sleighs through the snow and heaving huge logs about. If your Christmas Day usually ends in a family fight, put this on instead.

**Get it:** Want to own this sequel in HD? Then you'll have to pick up the *Rocky* Blu-ray boxset



## RARE EXPORTS

A fantastic 2010 Finnish film that gives the usual Xmas trimmings a wicked twist as it goes back to the Nordic folk tales that depict Santa Claus as a supernatural creature who sneaks into houses to punish naughty children. Packed with sly humour, solid scares and a few throwbacks to *The Thing*, it's a Christmas movie like no other.

**Get it:** The all-region US Blu-ray not only boasts a better encode than the UK platter, it's also loaded with bonus goodies



## SANTA CLAUS CONQUERS THE MARTIANS

We don't usually subscribe to the notion of a movie being 'so bad it's good', but this much-derided 1960s sci-fi – put together on a shoestring budget and boasting some impressively inane dialogue, plotting and costume designs – provides a perversely pleasurable experience. Check it out.

**Get it:** Available from the US as both a remastered all-region BD and as an extra (albeit in SD) on the *Rare Exports* Blu-ray (left).



## WHITE CHRISTMAS

Bing Crosby and Danny Kaye star in this musical about former soldiers teaming up with a pair of sisters (Rosemary Clooney and Vera-Ellen) to organise a benefit show for their former commanding officer. Criminally soppy at times, the film makes amends with its stellar cast, catchy songs, vibrant VistaVision photography and belief in the power of a good night's snowfall.

**Get it:** The excellent UK Blu-ray can be yours for about a fiver





## THE MUPPETS CHRISTMAS CAROL

Michael Caine excels as Ebenezer Scrooge and is ably supported by Kermit and gang in this fantastic Charles Dickens makeover. Offering wonderful set design, foot-tapping songs and a zippy, witty script, it's Team HCC's favourite adaptation of the famous novelist's work. Sad, eh?

**Get it:** The 20th Anniversary BD release is the theatrical cut – note this doesn't feature the *When Love is Gone* song that was reinstated on Laserdisc, VHS and DVD versions. Bah, humbug!



## DIE HARD

Some people like to watch *It's A Wonderful Life* on Christmas Eve. Those in the know watch *Die Hard*. Its story of an off-duty cop outwitting high-tech robbers in a skyscraper on the night before Christmas sounds elaborate, but director John McTiernan keeps it tight and tense and doesn't forget that characterisation is as important as carnage. It's now been followed by four sequels, none of which capture the mistletoe magic of the original.

**Get it:** Take your pick from the standalone Blu-ray or the various HD boxsets (including the recent US 'Nakatomi Plaza' collection)



## GREMLINS

Director Joe Dante and producer Steven Spielberg rustled up this darkly-comic Christmastime horror in 1984, which handily warns young-uns that expensive presents should be treated with care, or they'll mutate into murderous green monsters with a penchant for *Snow White* and *the Seven Dwarfs*. Littered with memorable scenes – microwaved Gremlin, anyone? – it's a totally unique Christmas cracker.

**Get it:** Available on BD with plenty of extra features (including a Dante chat-track) and 5.1 audio. Don't expect picture quality miracles, though



## LETHAL WEAPON

Christmas is writer Shane Black's calling card (see also *Kiss Kiss Bang Bang*, *The Long Kiss Goodnight* and *Iron Man 3*), and here it serves as the backdrop to the first (and best) outing for Mel Gibson's maniacal cop Martin Riggs and family-man partner Roger Murtaugh (Danny Glover). The quintessential buddy movie, *Lethal Weapon* mixes laughs and action set-pieces (and Christmas trees!) to winning effect.

**Get it:** Hunt down the *Lethal Weapon Collection* BD set for this flick and its three sequels

## GHOST STORIES FOR CHRISTMAS

Between 1971 and 1978 the BBC went out of its way to terrify telly-addicts every Christmas Eve with a series of chilling ghostly fables. Primarily sourced from the short stories of M.R. James (with Charles Dickens' *The Signalman* and a couple of original tales thrown in for good measure), the features traumatised a generation of youngsters who have since grown up and brought back the tradition with a quartet of new additions over the past decade.

**Get it:** The BFI's DVD boxset includes the eight original films, plus the nerve-shredding 1968 *Omnibus* adaptation of *Whistle and I'll Come to You*, plus three of the more recent additions.



# Surrounded by sound!

This high-end nine-seater cinema supports Dolby Atmos and Auro-3D. **Mark Craven** wants it





### KIT CHECKLIST

**FORTRESS:** Premium leather Kensington seats

**SCREEN RESEARCH:** Curved projector screen with automated masking

**RUNCO:** LS-12HBd Full HD projector (with CineGlide lens)

**PROCELLA:** 3 x P28; 3 x P8; 2 x P6 in-walls; 10 x P6 LCR; 1 x P15 subwoofer; 1 x P18 subwoofer; 2 x DA-05/DSP amplifiers

**DATASAT:** RS20i processor; 2 x RA7300 power amplifiers

**KALEIDESCAPE:** 1 x 3U Server (8 x 4TB drives); 1 x DV700; 1 x M700; 1 x Cinema One

**BEHIND-THE-SCENES:** 8 x acoustic absorption panels; 8 x ambience panels; 12 x acoustic bass panels

**CONTROL4:** SR260 controller

**SONY:** PlayStation 4

**MICROSOFT:** Xbox One

**NINTENDO:** Wii U

**NEXT-GEN SOUND FORMATS** are making waves in the custom install market, where positioning speakers in-wall and in ceiling is no problem in a dedicated cinema space. This glamorous setup features an 18-strong array (plus two subwoofers), in conjunction with the HCC award-winning Datasat RS20i processor (cost? a cool £18,500). The result is a potent system that can deliver both Dolby Atmos and Auro-3D formats for an immersive experience.

The cinema room was designed and installed by Seven Integration, a pro outfit based near Brighton. The company was approached by an existing home automation customer to spec a theatre within a basement that was in the process of being excavated.

The finished space is drool-worthy. Two rows of Fortress Kensington seats (with three in the front offering plenty of room for leg-stretching) provide prime viewing of the curved Screen Research projector screen. Images are delivered via a racked Kaleidescape system and Runco LS-12HBd projector. The former allows for instant Blu-ray playback without trailers and other disc-based mood killers; the latter uses a CineGlide lens to provide 2.35:1 visuals in tandem with the screen's automated masking.

### Return to render

The design certainly catches the eye. Seven Integration was given responsibility for interior styling and room construction, and worked through various CAD renders before the owner agreed on a final theme. One hurdle to overcome was finding the optimum path for the staircase, needed to handle the two-metre drop from floor level. By snaking it across and down the back wall before turning a corner, it meant ideal speaker positions could be maintained and the full two-row seating arrangement installed.

The walls are wrapped in stretched fabric, the stepped ceiling incorporates programmable LED illumination, and the front wall offers a stage area for the family's children to show off their music talents. Walls and ceiling conceal acoustic treatments from Behind-The-Scenes, including a dozen bass traps. The positioning of the seats, projector, speakers and screen are all calculated to industry standards.

This is a room with some grin-inducing touches, too. The back-row seats are D-Box fitted for an extra level of movie immersion, and the lighting array has been set with three pre-movie themes – a keypad near the entrance offers a trio of coloured buttons. Hit red for a red ceiling wash with *Tubular Bells* playing before the film starts, blue for a blast of Gustav Holst's *Planet Suite* (made famous by *2001: A Space Odyssey*) or green for the *Harry Potter...* theme. We'd probably cycle through all three... ■

The Kaleidescape system makes choosing a movie a visual experience



## INSTALL INFO

### A AESTHETIC ATTENTION

The stretched wall fabric is colour-coordinated to match the Fortress seating

### B LIGHTING THE WAY

Floor-level illumination makes a mid-movie toilet break easy...

### C HIDDEN AUDIO

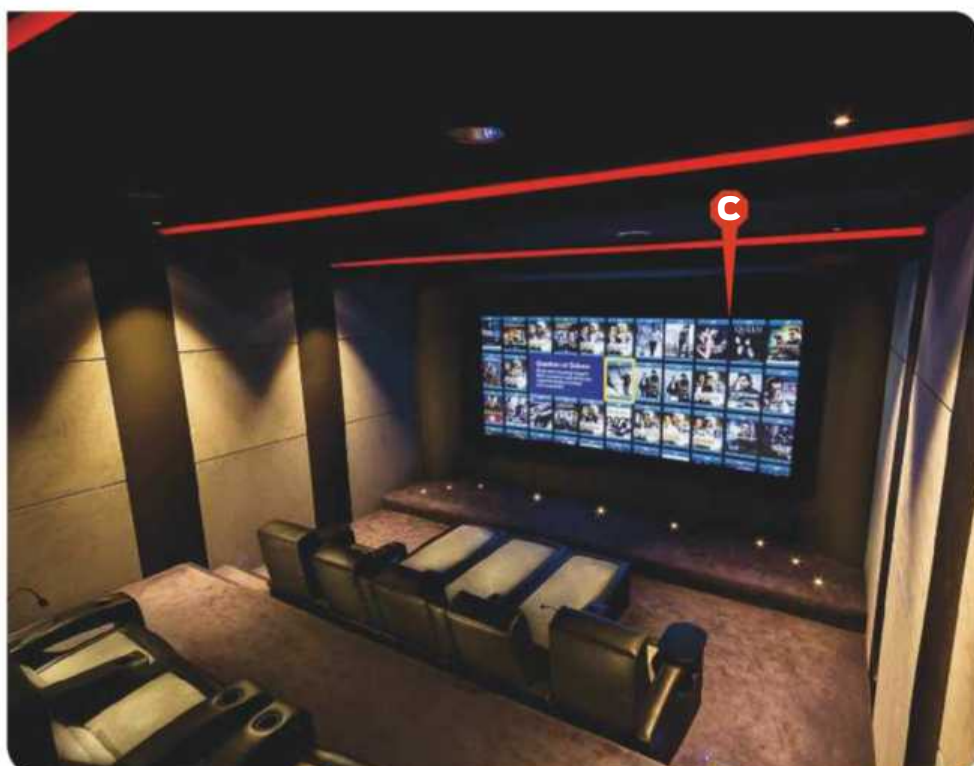
The front LCR speakers are mounted behind the Screen Research projector screen

### D SOUNDS GOOD

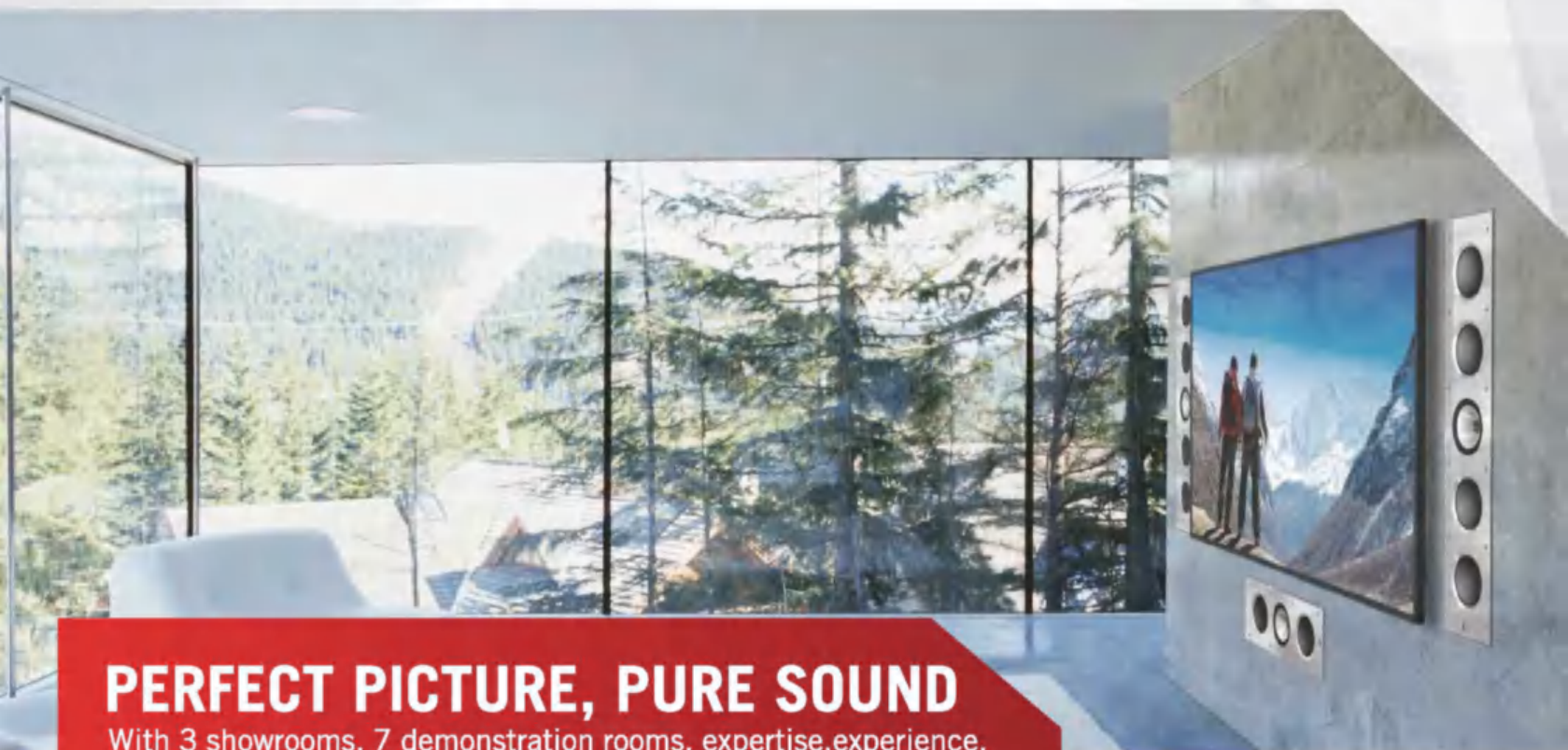
On sonic processing duties is a Datasat RS20i (feeding into a pair of Datasat power amplifiers). This premium component supports Dolby Atmos and Auro-3D decoding (and DTS:X in the future), and runs Dirac Live room optimisation

### E MOVIES ON DEMAND

For instant film thrills, this room features a racked Kaleidescape system, including a monstrous 8 x 4TB server







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# REVIEWS

→ **HARDWARE HIGHLIGHTS** **PANASONIC** 65in curved HDR-ready LED TV  
**YAMAHA** Flagship 11-channel AV processor & Dolby Atmos/DTS:X soundbar **PHILIPS** 50in Full HD Android  
 LED TV **HUMAX** Triple-tuner Freeview Play PVR **OPTOMA** DLP Full HD projector with Darbee Visual  
 Presence processing **SONY** Hi-res audio/video player **MARANTZ** Slim-line AV receiver **AND MORE**

## Back with a bang

The B5 AV package revamps Monitor Audio's affordable Bronze Series speaker range. We give our verdict on page 56



### HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆



**BACK TO  
THE PAST**

*Terminator:  
Genisys* spoils  
for a fight on  
Blu-ray, p98

The full-width stand will  
require a full-width AV  
cabinet to sit on...



**John Archer** decides he prefers Panasonic's premium LCD TVs to come without the curve

# Should AV fans always bet on flat?

**CURVED SCREENS HAVE** made enough of a stir to persuade most brands to include at least a couple such models in their latest TV ranges. I recently tested Sony's 65S8505C curved model, and today I find myself staring into the distinctly concave face of Panasonic's debut curved TV, the 65in TX-65CR852.

As is usually the case with curved TVs, the 65CR852 is pitched as a high-end model. It resides in the upper tier of Panasonic's 2015 TV range, packing a native 4K/UHD pixel count and image processing engine endowed with the brand's 4K Pro label.

The screen also features direct LED lighting driven by a local dimming system. And the panel is made using the same high brightness, wide colour phosphor design as found on Panasonic's flagship CX802 flat TVs (see *HCC* #252), which will make it a friend of high dynamic range content once the set's HDR feature is enabled by a future firmware update.

## Style warrior?

The TV's curved shape gives it a slightly more dramatic, stylish appearance than the Panasonic CX802. However, that glamour will dissipate somewhat if you hang the set, as the curve makes it protrude quite some distance from the wall.

Another issue with its design is the way the desktop stand attaches to the bottom left and right corners of the screen, as this essentially means you'll need to place the 65CR852 onto a piece of furniture that's at least as wide as the TV if you want it to stay upright. And the TV is nearly 1.5m wide.

As with its flat sibling, the stand causes the screen to lean back slightly.

The 65CR852's connections reflect the importance of multimedia in today's TV world, with three USBs, integrated Bluetooth and integrated Wi-Fi. Use the latter (or the Ethernet port) for either streaming video/photo/music files from DLNA-capable

networked devices or accessing Panasonic's arena of online content, which has swelled handsomely in 2015 thanks to the inclusion of both the Firefox operating system (introducing a more open standard for app developers) and support for the new Freeview Play service.

Firefox OS turns out to be a challenger for LG's webOS platform in its ease of use and presentation, and it provides access to key apps like the 4K versions of Netflix and Amazon. Freeview Play provides catch-up and on-demand access to content (including box sets where available) from the BBC, ITV, Channel 4 and Channel 5 stables – all presented in an attractive interface that supports a past and future seven-day electronic programme guide.

I wouldn't say Freeview Play is quite the revolution in streamed TV the service's current TV advertising makes it out to be, but at the same time it's a great addition to Panasonic's smart TV interface – especially as it is, as its name suggests, completely free to use. See our review of Humax's Freeview Play PVR on p64 for more.

## Call in the Pros!

While the 65CR852's curve and 4K resolution might be its most immediate attractions, the 4K Pro processing mentioned earlier could well be what most catches the eye of *HCC* readers. After all, 4K Pro has been designed from the ground up to deliver pictures that match as closely as possible the original vision of content creators, drawing on tools such as 3D Look Up Tables (LUTs) for all six of the primary/secondary colours; algorithms

Even the touchpad controller is curved



## AV INFO

**PRODUCT:**  
Curved 65in 4K/  
Ultra HD TV

**POSITIONING:**  
Panasonic's top-tier  
LED-lit LCD

**PEERS:**  
Samsung  
UE65JS9500;  
Sony KD-65S8505C

developed from Panasonic's plasma days for reproducing more shadow detail in dark areas than LCD sets can normally manage; improved noise reduction systems; improved upscaling of non-4K content; and a system for putting back into non-HDR sources some of the luminance that's customarily lost in the digital compression process.

Having being largely wowed by the pictures of Panasonic's CX802 flatscreen, I was hoping for similar AV thrills from this curved equivalent. But unfortunately it comes up short – quite substantially short – of its flat brethren in three key areas.

First and worst, its 3D performance is one of the poorest I've seen. All but the very flattest frames of the 3D Blu-ray of *Tron* appear riddled with crosstalk ghosting noise, with largescale shots like those in the arena sequences almost becoming unwatchable at times. The way your eyes keep trying to compensate for the ghosting also makes watching 3D on the 65CR852 seriously fatiguing. All of which is bizarre given that the flat CX802 TVs are actually very enjoyable with stereoscopic fare.

Other problems with the 65CR852 concern its backlight performance. The screen reveals itself to be much more susceptible to backlight clouding issues than I was expecting. The dark sequence at the start of *Mad Max: Fury Road*, where our hero makes a frantic attempted escape from a cave, suffers from noticeable LED bleeding.

Additionally, the 65CR852 doesn't achieve such deep black levels as the CX802s manage to reach, leaving even the stable areas of that sequence looking a little greyer and less convincing.

### Know your settings

Can these issues be rectified? Well, it's possible to reduce the impact of the two backlight issues considerably by some tweaking of the TV's settings via the huge wealth of tools that Panasonic places at your disposal. In particular, setting the Adaptive Backlight control to maximum and reducing the backlight setting to well below its halfway level limits the extent to which the clouding and general greyness impact the picture. However, setting the TV up to counter its backlight foibles has the unfortunate, but expected, effect of stripping away some of the punch and lustre of bright scenes. *Mad Max...*'s crazed extremes of light and dark illustrate this issue perfectly. Having made the night-time desert sequences look more immersive and convincing by adjusting the backlight settings as described earlier, the final brightly-lit desert battle becomes far less eye-catching and exhilarating than it did before.

Furthermore, employing the Adaptive Backlight feature on its highest level isn't ideal,



'This screen proves adept at trawling for shadow detail – in this regard it's a worthy equal of the CX802'





as the picture's overall brightness shifts around noticeably as the light levels of content alter.

These imaging flaws are frustrating considering how well Panasonic's curved debutante performs in other areas. For instance, the deft touch of 4K Pro can clearly be seen in the skilful rendering of colours, irrespective of whether you're watching native 4K or upscaled Full HD footage. There's no ugly striping in colour blends, no blocking or plastickiness over even the most trickily-lit skin tone, and more than enough finesse and range to the colour palette to ensure that Panasonic's screen delivers every pixel of impact from its native UHD resolution.

It's a shame that the brightest colours in *Mad Max's* varied repertoire look a bit subdued after having to tone down the TV's backlight, but the way the screen reveals even the smallest shift in tone of the rolling sand dunes that dominate *...Fury Road* is a joy to behold.

More unexpectedly given its backlight issues, this screen proves adept at trawling for shadow detail. In this regard, it's a worthy equal of the CX802, with dark areas exhibiting none of the hollow feeling often experienced with LCD technology. Panasonic has conjured up remarkable light control in near-black picture areas. It's hard to fathom, in fact, how the brand can be so good on the 65CR852 at delivering such fine light detailing, but struggle so much to control its light output on a more macro level.

The fast cuts and motion in George Miller's oiled-up action fest generally leave this TV untroubled. It does a decent job keeping up, suffering minimal resolution loss and not succumbing to unpleasant amounts of processing noise if you activate Panasonic's Intelligent Frame Creation system on its gentlest power setting.

One thing I haven't discussed so far is the impact the curve has on the experience of watching the 65CR852. If you manage to

sit in just the right place – close enough to the screen and as directly opposite its centre as you can – then as usual the curve does let you feel a bit more immersed in the action. But really that's all I can come up with from a positive point of view, especially as the 65CR852 lacks the subtle depth enhancement processing that actually works quite effectively on curved TVs from rival Samsung.

And there are a couple of curve-induced negatives to report. First, anyone watching from much of an angle will experience more obvious image geometry issues than they would with a flat screen. Second, bright reflections on the panel are distorted across more of the picture than they are with regular sets.

The 65CR852 actually delivers a more consistently impressive performance with its audio. The soundstage engineered by the 40W speaker array is big and powerful enough not to collapse under the monstrous weight of *...Fury Road's* 'turned to 11' mix, continuing the cinematic feel created in the first instance by the sheer size of its screen. It manages to infuse the movie's oh-so-many explosions with a bit more bass meat than most slim-line TVs muster, while keeping dialogue clear and coherent – well, as much as any of *Mad Max's* dialogue can be called coherent.

### Sibling rivalry

The Panasonic 65CR852 has its good points but is ultimately a frustrating bigscreen proposition. Its trio of flaws – more if you also can't avoid the curved screen's viewing angle and reflection issues – make it impossible to recommend highly when you consider that the company's own flat CX802 4K TVs cost less and perform better. Undoubtedly, further curved screens from Panasonic are coming down the pipe. Hopefully it will be a case of second time lucky ■

### ON THE MENU



→ Remember when Panasonic TVs had slightly austere interfaces? Those days are long gone – the CR852 again uses the new Firefox OS that employs slick, colourful menus but still allows you to dig deep into settings

### SPECIFICATIONS

**3D:** Yes. Active

**4K:** Yes. 3,840 x 2,160

**TUNER:** Freeview HD; Freesat HD

**CONNECTIONS:** 3 x HDMI; 3 x USB; Ethernet; SD card; LNB input; RF input; Scart

**SOUND:** 40W

**BRIGHTNESS (CLAIMED):** N/A

**CONTRAST RATIO (CLAIMED):** N/A

**DIMENSIONS (OFF STAND):** 1,454(w) x 850(h) x 143(d)mm

**WEIGHT (OFF STAND):** 32kg

**FEATURES:** Built-in Wi-Fi; USB multimedia playback; SD card multimedia playback; DLNA playback; 4K Pro processing engine; high brightness, wide colour phosphor panel; Firefox OS; built-in Freeview Play; HDR support via future update

### HCC VERDICT



**Panasonic TX-65CR852**

→ £2,800 approx → [www.panasonic.co.uk](http://www.panasonic.co.uk)

→ Tel: 0844 844 3899

**HIGHS:** Gorgeous detailing and colour; Firefox OS works brilliantly; Freeview Play is a good addition; respectable audio

**LOWS:** Backlight clouding; expensive versus flat models; 3D looks poor; curved screen requires TV placement care

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★

The latest NR receiver is Marantz's best attempt yet at slim-line sonics, says [Steve May](#), and that's before you factor in Atmos

# Immersive upgrade

**THE NR1606 IS** the latest in what has become a popular line of ultra-slim AV receivers from Marantz. While its antecedents were largely innovative for their accommodating form factor, it's now advances in tech that are driving development.

The most obvious upgrade here is provision for Dolby Atmos decoding, plus compatibility with DTS:X, although at the time of this audition the DTS:X update had still yet to drop, so my immersion was only Atmos-pheric and my DTS demo disc was left unopened. Sigh.





The cosmetic design is unchanged from what's gone before – and it's still a bit fussy. The characteristic fascia curves and Madonna knobs book-end a wide, clear display. There's no drawbridge to hide front-mounted HDMI and USB (with iOS Digital Direct) ports, while a full-size headphone jack and setup mic input glare out like James Finlayson.

Rear-side you get a magnificent seven HDMI inputs, but only a single HDMI output. Clearly this AVR isn't intended for theatre rooms that use both a screen and a projector. The onboard upscaler can manage 4K 30Hz or 1080p/60. All the HDMI inputs appear to be HDCP 2.2 compliant, which means you'll be well prepared for next-generation 4K content sources like Sky 4K and Ultra HD Blu-ray.

For interface completists, there are two sets of legacy component inputs (and one output), three sets of analogue stereo inputs, with matching composite video, but only two digital

audio options (coax and optical). There are also pre-outs for the main stereo pair, a dual subwoofer phono feed and a stereo analogue Zone 2 option. Personally I would like to see the slim-line form factor coupled with a simplified back-panel, but it is what it is.

Wireless antenna can be pinged up if the hard-wired Ethernet port isn't required. There's also a 12V trigger for system control.

The receiver is a seven-channel design, which means you can opt for either a 5.1.2 Dolby Atmos layout, or a conventional 7.1. Confusingly, there are no dedicated height speaker terminals on the rear panel – just conventionally labelled surrounds. The actual employment is decided during setup. If you want to change from one layout style to another, you'll need to redo the setup.

Atmos should not be the default just because it's available. 5.1.2 suits smaller rooms, but 7.1 is my preference in a larger

space. Power output is rated at 50W per channel (into 8Ohms). Sensitive speakers are therefore this amp's natural partner.

Props should go to Marantz for the work it's done on setup. This receiver is friendlier than a pack of Golden Retrievers. Once powered up, you're guided through every aspect, from choosing speaker configuration to confirming sources and bequeathing appropriate icons.

A new quad-core DSP keeps everything lively.

The setup routine also includes Audyssey MultEQ room tuning. This allows up to six points to be measured, but most listening positions need only three. A cardboard tripod is provided to get the mic to ear-height.

Treat Audyssey with caution. Left to its own devices, I found it opted for a hodgepodge of crossover points and levels. Frankly, a manual setup using an old-school SPL meter proved the better solution. The NR1606 allows you to individually set crossovers for your speaker ➤



The NR1606 stands just over 10cm high

#### AV INFO

**PRODUCT:**  
Seven-channel  
Dolby Atmos  
slim-line AV receiver

**POSITIONING:**  
Top of the Marantz  
NR pile

**PEERS:**  
Pioneer VSX-510;  
Yamaha RX-S601

**A simple, uncluttered handset is supplied**





Still using component video sources? This Marantz can help

complement, or uniformly default to 80Hz, under which all is sent to the subwoofer. The latter is a good movie option if you have sizeable subs at your disposal (I used a pair of Velodynes, so no worries).

The receiver is Spotify Connect and AirPlay compatible. There's no proliferation of DSP modes, just some very basic sound treatments.

Select Online Music on the IR remote and you're given a choice of internet radio services or media servers on your own network. Having 'net radio onboard makes the provision of the analogue tuner somewhat redundant, but the choice and quality of stations is highly variable (I was disappointed to learn that Metal Hard Tokyo is limited to a rowdy 128kbps).

The receiver is widely compatible with file formats and codecs, although where DSD is concerned only 2.8MHz is supported. You can't play 5.6MHz double DSD, or multichannel DSD for that matter.

While listening to tunes, you can replace the static menu screen with a live video feed from one of your connected sources, a neat touch for multitaskers. The receiver also offers HDMI passthrough, so that when in standby you can continue to view a nominated source.

### Satisfying sonics

In flight, the NR1606 sounds unfettered and spacious. When Han returns to the rebel base on Hoth (*The Empire Strikes Back*, Sky 5.1), the soundstage is awash with crackling repairwork and cackling, peeping droids – there's cavernous space and width. As Kara Jor-El boards her teen-pod to earth (*Supergirl* pilot, Sky 1, 5.1), volcanic thunder ripples top left, while the score floats cinematically wide. Both highly satisfying.

I've auditioned all of the previous Marantz NR models, and I'm fairly convinced this is the best-sounding yet. The opening road race to *Fast & Furious 6* (Blu-ray, DTS-HD Master Audio 5.1) is perfectly visceral, with gutty gear changes and angry engines just as it should be, and the goat bleat is clear as a bell. Similarly, the opening salvo in WW2 drama *Broken* (Dolby Atmos) is frighteningly tight and concussive.

*Interstellar* has one of the most remarkable soundtracks in recent cinema, and this mid-range Marantz doesn't diminish the drama. The DTS-HD MA 5.1 mix throws you out of our galaxy with gleeful gusto (Chapter 9); as the wormhole exerts its reality-warping pressure, my viewing room began to creak violently. Instruments bleeped in alarm. If you, like me, suffer from LFE rattle anxiety, this sequence will push you right over the edge.

When Matthew McConaughey airbrakes down to waterworld (Chapter 10), I began to fear for the structural integrity of my room. Waves lap around the soundstage, incessant ticking building the tension, until the mountain-sized wave hits and a world of water splashes from front to back. Soundbars don't even come close.

The NR1606 is also intense and exciting with two-channel sources. *BabyMetal Live at Budokan* (Blu-ray, 24-bit/48kHz PCM stereo), is all machine-gun percussion and sashimi-shredding guitar. The receiver just about keeps things under control.

That said, the bass output is a little on the dry side, and can occasionally sound like someone beating tupperware, but the NR1606 has a decent transient performance capable of broad dynamics. Familiar Dolby Atmos trailers deliver copious rumble (*Amaze*) and crisp, snappy highs (*Leaf*).

### Significant improvement

There's loads to like about the NR1606. This Atmos-enabled receiver is a significant upgrade on its forebears in terms of functionality, not least the provision of HDCP 2.2 inputs and DTS:X upgradability, and it's also an energetic listen. In truth, I preferred it in its conventional 7.1 mode – there was a balance to the soundstage that just seemed more consistently coherent. While there are caveats – the single HDMI output is a serious impediment to system builders, and you'll probably hanker for more muscle if your room is on the larger side of normal – balance these with its accommodating demeanour and unobtrusive form factor and you'll find it a more than halfway winner ■

### ON THE MENU



→ Operation is generally fuss-free, with a simple, clean menu structure. There's also an iOS/Android app to play around with

### SPECIFICATIONS

**DOLBY ATMOS:** Yes  
**DTS:X:** Yes, via future firmware upgrade  
**THX:** No  
**MULTICHANNEL INPUT:** No  
**MULTICHANNEL OUTPUT:** No  
**POWER OUTPUT (CLAIMED):** 7 x 50W (into 8 Ohms)  
**MULTIROOM:** Yes. Zone 2 stereo analogue only  
**AV INPUTS:** 3 x composite; 2 x digital audio (1 x optical and 1 x coaxial)  
**HDMI:** 8 x inputs; 1 x output (HDMI v2.0)  
**VIDEO UPSCALING:** Yes. 1080p/60, 2160p/30  
**COMPONENT VIDEO:** 2 x inputs; 1 x output  
**DIMENSIONS:** 440(w) x 105(h) x 376(d)mm  
**WEIGHT:** 8.5kg  
**ALSO FEATURING:** HDCP 2.2 support; Apple OS and Android control apps; Audyssey MultEQ room calibration; DLNA file playback; Ethernet; integrated Wi-Fi and Bluetooth; AirPlay; radio tuner; MP3, WMA, WAV, AAC, FLAC, AAC, AIFF, DSD 2.8MHz file playback

### HCC VERDICT



#### Marantz NR1606

→ £600 approx → [www.marantz.co.uk](http://www.marantz.co.uk)

→ Tel: 0289 027 9830

**HIGHS:** Dolby Atmos and DTS:X support; lively dynamic presentation; easy to use; HDCP 2.2 compliance

**LOWS:** Single HDMI output; not an earhole bruiser; fussy fascia; no support for double DSD

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★





\* Screen image shown is simulated

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\* The Freeview play service and channels are subject to change and may be changed from time to time. Minimum broadband speed of 3mbps required for catch up and on demand services. Netflix available in late 2015. Streaming membership required.

Philips' TV range continues to impress **John Archer** with this affordable yet talented Full HD 50-incher

# Philips looks on the bright side

**AS APPLE IS** keen to stress now that it's rolled out a new Apple TV box devoid of 4K/UHD capability, Full HD television is far from dead. For many people HD remains adequate for their needs – especially as HD TVs are having their prices squeezed by an increasingly bitter UHD price war.

Philips seems more aware than most of Full HD's ongoing sales potential. It has integrated a wide selection of HD models into its current range and has already impressed us with the 40in 40PT6510 (HCC #253). Now it's out to prove that HD still matters further up the screen-size ladder with the 50in PFT6550.

## Quality design

For a TV that costs the far from princely sum of £650, this is a serious looker. Everything about the design exudes quality, from the metallic silver frame to the protruding illuminated Philips logo and gloriously finished brushed aluminium pedestal stand.

Plus there's the small matter of Philips' famed Ambilight technology, which here can use arrays of individually-controlled LEDs on three of its rear edges (the 40in PFT6510 only used two sides) to throw coloured light onto your walls that match the content of onscreen images. It's a fun feature to indulge in.

Setting up the 50PFT6550 introduces you to Philips' big smart TV feature for 2015: Android TV. This isn't a wholly positive thing; I have problems with Android TV's straitjacketed approach, rather ineffectual recommendations engine and its 'quantity over quality' approach to apps. Android TV doesn't currently offer support for all the main UK broadcasters' catch-up TV apps either, or Amazon's video streaming platform.

At least this Android implementation runs reasonably slickly versus the version found on Sony's 2015 TVs, though, and avoided any full-on crashes during my tests.

Flip the Philips handset over to use its QWERTY keyboard



The 50PFT6550's status as one an uncompromising HD TV is underlined in red marker by its picture credentials. The processing engine it employs is Philips' redoubtable, top-tier (except for its 4K/UHD version) Perfect Pixel HD system, which throws a huge amount of power into improving everything from colour and sharpness to motion handling, contrast and shadow detail.

Well, I say 'improving'. As with all video-fettling engines, you have to handle Perfect Pixel HD with white gloves if you don't want it to start making pictures look unnatural. In fact, it's capable of making pictures look downright bizarre if you leave it to its own devices.

In particular you should switch off all noise reduction for good-quality HD sources, use the Best Picture contrast mode and only use the Perfect Natural Motion system on its first setting. It's also worth reducing the image's Video Contrast tool to stop pictures looking forced, and personally I always turn off the Super Resolution processing as it over-sharpens images to the point where they start to become noisy.

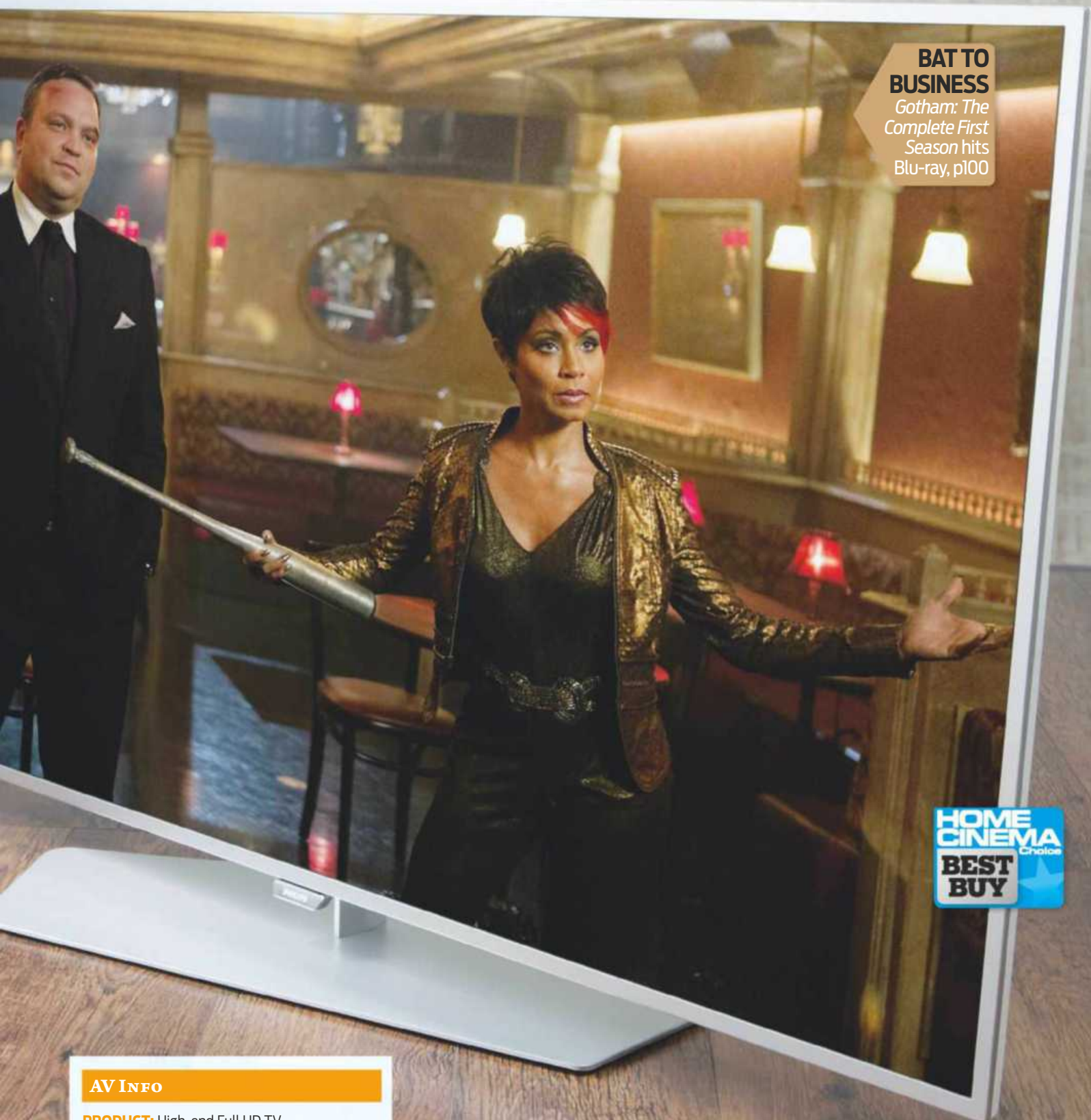
One thing worth adding if you're worried about getting the best from this screen is that it's endorsed by the ISF as a TV with enough flexibility to support a professional calibration.

## Perfect pictures?

Perfect Pixel HD combines beautifully with Philips' latest LCD panel to deliver some outstanding picture quality.

The star of the show is, handily, my favourite video trait: black level response. As with the majority of Philips' sets at the





**BAT TO BUSINESS**  
*Gotham: The Complete First Season* hits Blu-ray, p100

**HOME CINEMA**  
Choice  
**BEST BUY**

#### AV INFO

**PRODUCT:** High-end Full HD TV

**POSITIONING:** Roughly in the centre of Philips' 2015 range

**PEERS:** Sony KD-55W805; Panasonic TX-50CS520



moment, the 50PFT6550 uses a direct LED lighting system in conjunction with Micro Dimming Pro tech that constantly analyses the content of multiple image zones to come up with optimum contrast and brightness settings. This twin approach works brilliantly. Black level depths during the night sequences at Bond's Skyfall home in the film of the same name are superb – and targeting such rich black levels doesn't cost the 50PFT6550 anything significant in shadow detail terms.

## 'Another strong Philips flatscreen, combining terrific Full HD performance with decent value'

The set also proffers a hefty amount of punch, and bright areas of predominantly dark scenes don't lack impact. However, using the TV's out-of-the-box settings, the sense of dynamism can go too far, drawing your attention to the bright parts of a contrast-rich image. Tone down the Video Contrast mode and keep the Perfect Contrast feature set to Minimum and the 50PFT6550's pictures still look strikingly dynamic but also much more balanced and natural.

### Explosive colours

This brightness and black depth serves the Philips' colours well. Sequences with the minions on a tropical island in madcap animation *Despicable Me 2* explode off the

screen. At the same time, colours retain both a strong sense of vividness and tonal naturalism during the perpetually tricky and dark Hogwarts interiors in the franchise-closing *Harry Potter...* movie. In fact, the colour handling is so precise that it joins forces with quite stunning sharpness to sometimes give you the impression that you're watching pictures higher in resolution than 'mere' Full HD. And, unlike some Philips TVs I've seen – usually ones that use the lower-powered Pixel Plus or Pixel Precise video processing suite – this impeccable sense of sharpness doesn't leave pictures appearing noisy. Especially if you took my advice and deactivated the unnecessary Super Resolution feature...

The power of the Perfect Pixel HD engine means that you can call upon Philips' Perfect Natural Motion feature to help motion remain crisp and clean without the image falling to pieces. The unwanted digital side effects sometimes witnessed with Philips' less-powerful processing are generally absent here if you don't ramp PNM too high.

Aside from the occasional tendency to push contrast too far, the only real issues I found with the 50PFT6550's pictures were a very rare 'buzzy' look to bright areas of extremely fine detail; and the appearance during dark scenes that have some bright content towards their centre of low-level backlight clouding in the screen's corners. This really isn't often visible on a sensibly-calibrated set, or if you've got any ambient light in your room. But in a blacked-out space it can momentarily distract you when it appears.

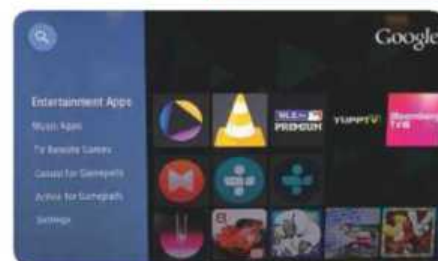
The TV's 3D capabilities were unavailable for testing due to Philips unable to supply the necessary 3D glasses (!). For the record, the screen is an active shutter design, which makes sense considering it's Full HD rather than 4K.

The 50PFT6550's audio is fair considering the set's narrow frame is joined by a relatively skinny rear end. There's a richer sense of bass than you usually get with budget LCD TVs, yet this doesn't overwhelm the mid-range or lead to much in the way of speaker distortion. Treble detailing is reasonably vivid and clear, and doesn't sound harsh, sibilant or dominant. I rate it more than acceptable for everyday use.

### Full HD lives on

Provided you're content with the 1,920 x 1,080 resolution and are happy to tinker, this is another strong TV offering from Philips, combining terrific performance with decent value. Yes, there are similar-sized 4K/Ultra HD models available for similar prices, but they are all entry-level sets (without support for Ultra HD Blu-ray's HDR content) rather than the premium proposition seen here. The brand is seemingly giving more focus to its Full HD models than its 4K sets in the UK. It may be that this isn't such a bad thing ■

### ON THE MENU



→ Beneath the tidy-looking Android interface you'll find a wealth of image processing tools to experiment with – and it's worth doing so to get this TV looking its best

### SPECIFICATIONS

**3D:** Yes. Active  
**4K:** No. 1,920 x 1,080  
**TUNER:** Yes. Freeview HD  
**CONNECTIONS:** 4 x HDMI; component video input; composite video input; 3 x USB; Ethernet port; RF input; optical digital audio output  
**SOUND:** 20W  
**BRIGHTNESS (CLAIMED):** 350cd/m<sup>2</sup>  
**CONTRAST RATIO (CLAIMED):** N/A  
**DIMENSIONS (OFF STAND):** 1,124(w) x 647(h) x 77(d)mm  
**WEIGHT (OFF STAND):** 13.3kg  
**FEATURES:** Android TV smart interface; USB multimedia playback and recording; Perfect Pixel processing engine; ISF support; built-in Wi-Fi; USB/DLNA media file playback; three-sided Ambilight

### HCC VERDICT



### Philips 50PFT6550

→ £650 approx → [www.philips.co.uk](http://www.philips.co.uk)

→ Tel: → Tel: 0207 949 03 19

**HIGHS:** Excellent all-round picture quality; good price for what's on offer; relatively slick and stable Android TV implementation

**LOWS:** Minor backlight clouding; occasional noise over detailed areas; Full HD res; Android TV can be clunky; complex settings

**Performance** ★★★★★  
**Design** ★★★★★  
**Features** ★★★★★  
**Overall** ★★★★★





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[www.Qacoustics.co.uk/concept](http://www.Qacoustics.co.uk/concept)

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All products also available separately: Concept 40 floorstanders,  
Concept 20 bookshelf, Concept Centre and 2070Si Subwoofer.





At 16.5cm wide, the Bronze 5 floorstanders should be easy to accommodate



## AV INFO

**PRODUCT:**  
5.1-channel  
speaker package

**POSITIONING:**  
Entry-level range,  
below Platinum,  
Gold and Silver

**PEERS:**  
B&W 683 Theatre;  
Acoustic Energy  
1-Series

**Danny Phillips** goes hunting for audio thrills with Monitor Audio's well-priced 5.1 package

# Worthy of a podium finish

**DESCRIBED BY MONITOR** Audio as its most 'democratically priced' speaker range, Bronze represents the bottom rung on the company's floorstanding speaker ladder. Yet like any good affordable package it absorbs the best bits of tech from its upper-tier siblings while driving down costs in other areas.

While above it sit MA's Silver, Gold and Platinum Series, this line has traditionally been one of Monitor Audio's biggest sellers. The company can't afford to rest on its laurels, though. Brands like Q Acoustics, Wharfedale and Tannoy have been shaking up the sub/sat market to such an extent that some will be wondering if an affordable floorstanding package is worth the bother.

Things get off to a good start with news that this new entry-level lineup – the successor to 2010's Bronze BX range – boasts driver and cabinet upgrades all designed to take its performance up a notch.

The most significant of these is the new dished C-CAM (Ceramic-Coated Aluminium/Magnesium) driver, which uses the entire surface of the cone to radiate sound and removes the hole in the middle – previously occupied by a phase plug on the Bronze BX speakers – to keep the cone as stiff as possible and stop it losing the plot when driven hard. The voice coil is thermally coupled to the back of the cone, drawing away heat and improving power handling.

## Meet the team

The new Bronze Series consists of seven models, including two standmounts (the Bronze 1 and the larger Bronze 2); two floorstanders (Bronze 5 and 6); a centre enclosure (Bronze Centre); a dipole/bipole surround (Bronze FX); and the all-important W10 subwoofer, which has been engineered specifically for this range.

The system here includes a pair of Bronze 5s, which use two midbass drivers compared

with three on the Bronze 6. They're joined by the Centre, a pair of Bronze FX and the W10.

All of the speakers come in a choice of Black Oak, Walnut, Rosemah and White Ash finishes. Here you'll find a concession to the system's entry-level status – the vinyl veneer is much less impressive than the sumptuous lacquers adorning the step-up Gold series, and there's no upgrade option.

But this cheaper finish doesn't stop the Bronze 5 being a stunning floorstander. I've long felt that Monitor Audio simply doesn't know the meaning of the word ugly. You get a slender, elegant cabinet that stands a surprisingly manageable 850mm high. It's adorned with subtly curved edges and a magnetic cloth grille that keeps the drivers hidden – great if you like the minimal look, but for my money they're prettier naked.

The two 5.5in C-CAM cones (one midbass, the other a dedicated bass unit) have been engineered in steel grey for the first time and add a flash of shiny glamour to the otherwise refined cabinet.

Caged behind a solid metal mesh at the top of the front baffle is a 1in C-CAM gold dome tweeter. Tweaks here include structural improvements to dome geometry and the drive mechanism, which work towards better accuracy at the top-end of the frequency range. Meanwhile, a new venting system reduces distortion by moving air past the magnet system into a rear loading chamber.

The sealed centre speaker is on the large side but is styled with equal panache.

The Bronze FX have dual tweeters mounted in angled baffles, with a single





forward-firing midbass driver. They can be fixed flush to a side or rear wall. Running a 7.1 array? Grab an extra pair of these for £280.

What's great about the Bronze system is that it caters for different listening tastes. For example, the Bronze FX speakers can be used in dipole mode for those who prefer a more diffuse sound, while those who like it directional can go for bipole. Choosing is as easy as flicking a switch.

The W10 subwoofer (which features a 10in driver, 10in passive bass radiator and 200W amp) offers similar flexibility. There are Music,

**'A tremendous entry-level system that backs up its rousing, insightful sound with superb build quality'**

Movie and Impact EQ DSP modes tailored to different bass tastes, plus separate mono LFE and stereo line inputs for movie and music use respectively.

If this all sounds familiar, it will be because these feature tricks are the same as offered on Monitor Audio's Gold Series, reviewed recently in *HCC* #251. The Bronze package is very much cut from the same design cloth – albeit with smaller enclosures/drivers and an accepted drop in performance.

#### Rich and refined

I said 'drop', but I doubt many buyers of the Bronze array will care. For the price tag demanded, this sextet of cabinets proves rather spectacular. It's rich in power and

dynamics but with the overarching sense of refinement that characterises all of the company's output.

After loading *Snow White and the Huntsman* into my Oppo Blu-ray deck, and with the speakers plumbed into my Onkyo AVR, they impress right from the off. Chris Hemsworth's opening narration has fabulous depth and presence through the Bronze Centre, with a gruff, grainy texture and nuances making it utterly realistic.

The C-CAM tweeters used across the system claim a high frequency response up to 30kHz. In practice, this means none of the movie's top-end detail goes awry. The quiet that precedes *Snow White's* encounter with the troll is bristling with subtle ambience like trickling water and rustling leaves. The clarity is entrancing.

There's an organic feel to these details that not every speaker system can achieve, but appears to be second nature here. Treble effects are voiced with no hardness or straining even when driven at high volumes.

The system's presentation is poised and organised even in the face of a sonic onslaught. When the angry troll starts smashing up the scenery, the MA set makes sense of every effect no matter how small, from splintering wood to splashing water.

This lucid, natural approach lets you lose yourself in the story without even realising there are speakers in the room. That's the measure of a great system.

The soundfield is well-built. The Bronze Centre and 5s construct a focused, muscular front stage with deep bass, making the troll's roar sound massive. The Bronze FXs play their part too, filling the back of my room with rich, three-dimensional sonics. In the midst of the shouty battle with *Ravenna's* glass soldiers, these wall-huggers render the shattering glass and metallic swordplay clearly.

The surrounds offer plenty of detail and decent (but not remarkable) bass depth. I experimented with both dipole and bipole modes and found the positional accuracy of the latter slightly more satisfying, but this will come down to personal preference.

The subwoofer is a real powerhouse too, helping the system make a massive impact. Bass notes are big and visceral, with admirable agility and slam.

Occasionally I yearned for a little more edge, just to lift the excitement levels even further. This array's smooth character and ability to remain calm is a virtue in most cases – and pays dividends when playing music – but if you like a little more grit there are more forceful, forward-sounding systems out there.

On the whole, though, this is a tremendous entry-level offering, backing up its rousing, insightful sound with top-drawer design and build quality. It looks and sounds like it should cost a lot more than it does ■

#### SPECIFICATIONS

##### BRONZE 5

**DRIVE UNITS:** 1 x 5.5in C-CAM bass driver; 1 x 5.5in C-CAM mid-bass driver; 1 x in gold dome C-CAM tweeter  
**ENCLOSURE:** Dual-chamber bass reflex with front and rear HiVe II ports  
**FREQUENCY RESPONSE:** 37Hz-30kHz  
**SENSITIVITY:** 90dB  
**POWER HANDLING:** 120W  
**DIMENSIONS:** 850(h) x 165(w) x 248(d)mm  
**WEIGHT:** 11kg

##### BRONZE CENTRE

**DRIVE UNITS:** 2 x 5.5in C-CAM mid-bass drivers; 1 x 1in gold dome C-CAM tweeter  
**ENCLOSURE:** Sealed  
**FREQUENCY RESPONSE:** 60Hz-30kHz  
**SENSITIVITY:** Not given  
**POWER HANDLING:** 120W  
**DIMENSIONS:** 165(w) x 460(h) x 165(d)mm  
**WEIGHT:** 5.6kg

##### BRONZE FX

**DRIVE UNITS:** 1 x 5.5in C-CAM mid-bass driver; 2 x 1in gold dome C-CAM tweeters  
**ENCLOSURE:** Sealed  
**FREQUENCY RESPONSE:** 65Hz-30kHz  
**SENSITIVITY:** 88dB  
**POWER HANDLING:** 80W  
**DIMENSIONS:** 274(w) x 276(h) x 105(d)mm  
**WEIGHT:** 3.2kg

##### W10 (SUBWOOFER)

**DRIVE UNITS:** 1 x 10in long-throw bass driver; 1 x 10in flat panel ABR  
**ENCLOSURE:** Bass reflex  
**FREQUENCY RESPONSE:** 30Hz-120Hz  
**ON BOARD POWER:** 220W  
**REMOTE CONTROL:** No  
**DIMENSIONS:** 320(w) x 320(h) x 330(d)mm  
**WEIGHT:** 12.9kg  
**CONNECTIONS:** LFE input; stereo line input

#### HCC VERDICT



##### Monitor Audio Bronze B5 AV

→ £1,500 approx → [www.monitoraudio.co.uk](http://www.monitoraudio.co.uk)  
 → Tel: 01268 740580

**HIGHS:** Robust build quality; elegant design; muscular bass; immersive soundstage; impressive detail and insight

**LOWS:** Could be more attacking and forward-sounding; vinyl veneer finish with no lacquer option

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



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60 YAMAHA YSP-5600SW → £1,900 approx



The Yamaha YSP-5600SW is a soundbar/subwoofer duo with serious audio ambitions. [Steve May](#) puts it to the test

# One bar to rule them all

**YAMAHA'S YSP-5600SW DOLBY** Atmos-enabled soundbar system has scrambled my mind. It sounds like a fully-fledged home theatre but clearly isn't; it looks like a soundbar but is something altogether more advanced. Could this be the future of home cinema?

The soundbar (Yamaha prefers the term sound projector, hence the YSP branding) is certainly a sizeable beast. Some 1,100mm wide and weighing 11.7 kg, it's a significant piece of

kit to install. You'll need either wide, solid furniture (don't think about adding this to a bedroom TV) or a sturdy wall – it can be mounted using the optional SPM-K30 bracket.

There's no room for fancy design. With tapered edges, the YSP is all front-facing mesh, behind which hides a 46-speaker beam array – each mini driver controlled by its own time delay setting and amplifier. Placed at the edge are twelve (2 x 6) 28mm upward-angled height speakers. These drivers utilise the same technique favoured by Dolby-enabled speakers, bouncing audio off the ceiling to create a height channel. In between are 32 beam drivers used to paint the L/C/R and surround,



## AV INFO

**PRODUCT:**  
Dolby Atmos  
soundbar and  
wireless subwoofer

**POSITIONING:**  
Top-of-the-range  
YSP sound projector

**PEERS:**  
Arcam Solo+/Sub;  
Sony HT-ST9



**Got your own sub?**  
The YSP-5600 can be  
purchased on its own

plus two (sub)woofers. There's a lot of directional acoustics at play here. The YSP's total claimed power output is 128W.

There's a significant complement of connections, too, including four HDMI inputs and one HDMI out. However, only one HDMI is 4K/HDCP 2.2-capable – which might prove frustrating if you want to hook up both an Amazon Fire TV 4K box and an Ultra HD Blu-ray player, for example.

Audio inputs comprise phono stereo, plus three digital audio inputs (two optical and one coaxial). There's an Ethernet port and USB, but the latter is for service use only, not media playback. Wi-Fi and Bluetooth are integrated, and there's support for AirPlay too.

You'll also find IR control inputs, an RS-232 port and a phono subwoofer output. While the YSP-5600 can be purchased solo for £1,600 and partnered with any existing subwoofer you may have, we're reviewing it here in its YSP-5600SW iteration (£1,900) which includes a bundled Yamaha room-shaker, the NS-SW300.

This subwoofer can be wired or used wirelessly, via a subwoofer kit (the SWK-W16, supplied). This powered pyramid connects

via phono to the LFE input. All you need do is instruct the soundbar to pair.

The subwoofer itself has a 250W powerplant and a 10in driver, aided by an unusual Twisted Flare port. It's finished in glossy piano black. Like its soundbar sibling, it's a sizable piece of kit, weighing 18kg and standing 36.6cm high.

With both soundbar and subwoofer powered up and wired in, the first thing to do is run IntelliBeam optimisation with the supplied microphone. It should be noted I had to make balancing adjustments to horizontal and vertical angles, beam travel length and focal length, as the auto calibration was somewhat off. These tweaks actually made a huge difference to the coherence of the YSP's performance.

To aid with installation, the soundbar offers a three-point dialogue lift to better locate the centre channel to your screen.

While Yamaha's AV receivers feature a user interface with graphical flourishes, it's perhaps disappointing to discover that the menu interface here is built around simple, low-res text. It won't win any design plaudits. Thankfully you don't have to look at it for long.

## Bombastic home cinema

First reactions to the YSP-5600SW are basically shock and awe. This combo plays loud with crisp front-of-house imaging.

The opening of J.J. Abrams' *Star Trek* reboot (Blu-ray, DTS-HD MA 5.1) sees the Enterprise dwarfed by the invading warship of nefarious Nero. An incoming warhead splinters into multiple barbs, which rip apart the Starship. The Yamaha throws sonic debris wide and high. When Captain soon-to-die flies to meet the giant invader, his shuttle thrums deep and lands with audible solidity; the ambiance of the alien vessel is all too vivid. When evacuation calls, the soundstage is alive with incident; not a single emotional beat is lost as James T is delivered in the escape pod.

Similarly, the bravura opening scene to *X-Men 2* (DTS-HD MA 5.1) sees Nightcrawler bamf his way into the Oval Office. Secret service agents try to pepper his tail, resulting in gunfire popping like corn all around.

Of course, the real test of the YSP-5600SW is recreating a Dolby Atmos soundfield – can immersive audio really be drawn from a single enclosure, no matter how many drivers are coerced? Yamaha boasts ➤



The NS-SW300 features a wireless sender

horizontal beams to deliver a 5.1 mix, *sans* height. For two-channel sources select Stereo, which uses a dedicated vertical beam speaker as a tweeter. There's also Target, offering mono speech trickery. In addition, there's a selection of Cinema DSP modes themed around Music, Movie and Entertainment (ten in all). As well as being Atmos-enabled, the YSP-5600 can also (eventually) be firmware upgraded to DTS:X.

Gravity has one of the best Dolby Atmos executions heard to date, with inventive channel

isolation: the opening scene features comms dialogue top right, panning left across the front soundstage, which the YSP handles well. Then the debris shower hits the Space Shuttle with enormous force, and the impact is jolting. Both the weight thrown by the soundbar and the tightness of its imaging are revelatory.

When we're in Bullock's helmet, her voice is high and reverberant, When the POV shifts outside, the soundstage goes from quasi binaural to near-mono and the subwoofer throbs. This is terrific stuff full of body, attack and detail – the multi-driver array exhibits a forceful midband adept at dialogue.

Of course, with all this excitement about immersive audio, it's too easy to forget that the sound projector is also MusicCast-enabled, which means you can not only throw it music from your mobile device, but include it as part of a multiroom system. Networked audio playback covers a good range of files and codecs too, including MP3, WMA, AAC, WAV and FLAC.

Overall, I rate the YSP-5600SW as a superb proposition. It's hands down the best-sounding two-box cinema solution I've heard this year, and in terms of height and width effectively delivers an Atmos experience. It's not a replacement for a full-blown 7.1.2 theatre system, more Atmos-Lite, but it comes close and is a lot easier to manage. And that in itself is remarkable ■

the system is comparable to a 7.1.2 Atmos system. In truth, it's not far off.

*Amaze* is a classic Dolby Atmos trailer, which features an insect buzzaround, deep bass thunder and rain shower from overhead. The clip reveals much of what's great about the YSP, and where its limitations lie. I've never auditioned a soundbar that truly replicates the surround soundstage of physical speakers, and that remains the case here. But the YSP does get tantalisingly close. What it can do with some authority is deliver the height indicative of an Atmos experience. In *Amaze*, while the insect fly-around never quite gets behind your head, the funky height rattle is spot on!

### Moving around with movies

I installed and auditioned the system in two very different rooms. One had a level of acoustic treatment, a mix of hard and soft surfaces, as befits a listening room. The other was more sonically hostile, basically a reflective square cube. Normally the latter would be a difficult room to serve, but for the Yamaha it proved ideal – an important point if you're looking to put a decent sound system in a minimalist studio room.

The YSP actually has four listening modes. 3D Surround uses five horizontal beams and two vertical beams to recreate a 7.1.2 soundfield. Surround is used for conventional multichannel sound sources. This uses five



Behind the grille sit dual 4.5in bass drivers, 12 upward-angled drivers and 32 front-facing speakers

### SPECIFICATIONS

**YSP SOUNDBAR DRIVE UNITS:** 44 x beam speaker array; 2 x 4.5in subwoofers  
**POWER OUTPUT (CLAIMED):** 128W  
**CONNECTIONS:** 4 x HDMI inputs; 1 x output; 2 x optical; 1 x coaxial; Ethernet; stereo phono  
**DOLBY ATMOS/DTS-HD MA (DTS:X) COMPATIBLE:** Yes/Yes  
**SEPARATE SUB:** Yes. NS-SW300 with 250W amplifier and 10in driver  
**REMOTE CONTROL:** Yes  
**DIMENSIONS:** 1,100(w) x 93(h) x 212(d)mm  
**WEIGHT:** 11.7kg  
**FEATURES:** MusicCast compatible; wireless subwoofer receiver; integrated Wi-Fi, Bluetooth; AirPlay support; Ethernet; RS-232 and IR control ports; wall-mounting option; IntelliBeam auto calibration set-up; ARC HDMI output; HDCP 2.2 and 4K passthrough; 10 x Cinema DSP modes; Compressed Music Enhancer; app controller

### HCC VERDICT

#### Yamaha YSP-5600SW

→ £1,900 approx → [www.uk.yamaha.com](http://www.uk.yamaha.com)

→ Tel: 0844 811 1116

**HIGHS:** L/C/R imaging; good Dolby Atmos height FX; excellent subwoofer integration; MusicCast compatibility; likes difficult rooms with lots of hard surfaces

**LOWS:** Manual intervention needed after IntelliBeam optimisation; doesn't convincingly image to the rear; crude text interface; single HDCP 2.2 HDMI input

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



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Enriched with elements of Platinum, Gold and Silver, the brilliant New Bronze series will transcend the expectations of its price class and eclipse even its venerated multi-award winning predecessor Bronze BX.



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Monitor Audio Bronze 5AV

**BRONZE 5AV**  
monitoraudio.com

 **MONITOR AUDIO**

Freeview Play updates the platform to include integrated catch-up. Yet **Mark Craven** is more impressed by this PVR's third tuner

# Sweet like chocolate?

**KEEPING UP WITH** modern TV platforms is getting a little tricky. Where once the choice was relatively simple – free-to-air, satellite or cable – there's now a diverse market to consider, with the likes of EE TV, YouView and Freesat Freetime muscling in. How does Freeview meet the challenge of staying relevant? By introducing Freeview Play...

In a nutshell, this is Freeview as everyone knows and loves – free-to-air digital terrestrial TV and radio – reimagined for the VOD generation by offering a backwards/scrollback

EPG that integrates network-delivered catchup content from the major players – BBC, ITV, C4 and Five. 'Catch-up made easy' is the Freeview Play slogan.

## The usual suspect

First out of the block with a Freeview Play recorder is, almost inevitably, Humax. The STB/PVR specialist has its fingers in so many broadcast platform pies it's probably got diabetes. Panasonic TVs are also available which integrate Freeview Play (see p44).

Humax's debut PVR is the FVP-4000T. It comes in 500GB (£200, tested here) and 1TB (£230) flavours, and in two different casings with a faux-leather top, dubbed 'Mocha' and 'Chocolate' (pictured), which basically equates to light or dark brown. Makes a change from



The FVP-4000T packs three Freeview HD tuners





black or white I suppose. Size-wise it's usefully compact at 28cm wide and 20cm deep. Connections run to Ethernet and Wi-Fi (necessary for the catch-up aspect), HDMI, composite AV, optical audio output, USB input and RF in/out.

Setup takes around five minutes, yet I chose to run a suggested software update, which required me to run through the whole process (including Wi-Fi password, T&Cs agreement and channel scan) all over again. Annoying.

The Freeview Play user interface at first feels pretty slick, with neat text and some appealing icons, and the handset proves good here too. Hitting the right arrow key brings up a scrollable window of current and future programming on whatever channel you're watching. Hit the left key and it flips to current and previous programming. Select a catch-up-available show (denoted by a 'play' icon), click 'OK' and you're in catch-up territory. This literally takes seconds to learn.

The same back and forth approach is employed on the Humax's EPG, although this is not quite such a hit. It shows now and next info for only five channels – scroll up or down to see more. In theory, channels are accompanied by an image from the show, but I found much of

the time these were missing, replaced by a grey box. Some channels displayed 'no programme information' messages as well for some time. Compared to the swifter, more expansive Sky EPG (the class-leader in my opinion) it falls short.

To make searching easier, you can switch between TV, radio and HD sub-categories, make a favourites channel list, or edit the list to remove unwanted channels.

In addition to the EPG-integrated catchup, the FVP-4000T features an OnDemand hub accessed either via the home page or a button on the handset. This has plenty of throwaway apps (Easy Brunch Recipes 2!) and dedicated portals for iPlayer etc. Some will prefer the familiarity of these to sifting through the EPG.

There's also a section called Humax Apps. At the time of test this offered YouTube, Euronews and Internet Radio. The latter is a great bonus feature on a PVR. Netflix is also promised as a future app.

The killer feature for me of the FVP-4000T is not its over-the-air/IP TV mashup, but the inclusion of three tuners. This immediately elevates it beyond the rest of the Freeview PVR crop, and Sky+HD, too. Recording conflicts with a twin-tuner STB can occur regularly, and cause family meltdowns. Anything that limits this is welcome. Having three tuners means you can generally set recordings without having to worry. And due to some multiplex magic, you can (within limitations) record four channels here and watch a fifth.

You can record directly from the EPG or the pop-up now-and-next panel, but Series Linking is a somewhat hidden talent, requiring you to counter-intuitively ignore the Record button and check out options. It can also be done via the Schedule sub-section menu within the Recordings menu – any future recording here has the option to record the whole series. You can also manually set recordings here and choose to add 'padding' at the beginning and end of shows. Handy.

A final point worth considering about the Humax is media playback. MP3 and JPEG files housed on shared networked devices or USB stick are playable, and some video formats. Furthermore, non-copy-protected recordings can be shunted off the HDD to external storage if you like to archive, and Humax's Live TV app will cast TV from one of the PVR's tuners to your smart device while letting someone else still watch another channel. All useful talents.

### Best in class, but...

Overall, this is a decent PVR. The cute design and form factor impress, as does the best-in-class hardware spec. Freeview stalwarts will appreciate the integrated catch-up and its recording flexibility. Usability could be improved however. Recommended, but with caveats ■

### ON THE MENU



→ The menus are pretty but the EPG is both a touch slow and doesn't show enough channels (only five). The Live TV app (pictured), which allows content to be viewed on smart devices, also offers an EPG and is a worthwhile companion

### SPECIFICATIONS

**HDD:** Yes. 500GB

**TUNERS:** Yes. 3 x Freeview HD

**CONNECTIONS:** 1 x HDMI output; Ethernet; composite AV; optical digital audio output; RF in/out; USB; built-in Wi-Fi

**CATCH UP:** Yes. BBC iPlayer, ITV player, All 4, Demand 5 and more

**APPS:** YouTube, BBC Sport, BBC News, Euronews, Internet Radio, BBC iPlayer, ITV Player, All 4, Demand 5

**DIMENSIONS:** 280(w) x 48(h) x 200(d)mm

**WEIGHT:** 1.03kg

**ALSO FEATURING:** JPEG, PNG, MP3, MP4, VOB, AVI, ASF, MKV, MPEG-2TS file playback from networked devices and USB; record whole series; padded recordings; channel favourites list; edit channel list; iOS/Android remote app/Live TV app; forwards/backwards EPG

### HCC VERDICT



#### Humax FVP-4000T

→ £200 approx (500GB)

→ [www.humaxdigital.com](http://www.humaxdigital.com)

→ Tel: 0344 318 8800

**HIGHS:** Triple-tuner recording flexibility; tidy design; good handset; full terrestrial catchup

**LOWS:** Series linking is counter-intuitive; EPG could be slicker; no Netflix or Amazon VOD yet

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★

### AV INFO

**PRODUCT:**  
Triple-tuner  
Freeview Play PVR

**POSITIONING:**  
Humax's only FVP  
model, available in  
three HDD sizes

**PEERS:**  
Sky+HD;  
YouView+

# Music and movies on the go

Sony's Walkman is back and the NW-ZX2 flagship is an impressive-looking thing.

**Ed Selley** finds out if it delivers on both audio and video fronts

**THERE WAS A** time when the Sony Walkman dominated the portable audio category to the extent that 'Walkman' became the catch-all terms for products of this type. Yet the 21st century has been less kind to the Walkman and saw it usurped by another generic term – 'iPod.' Now though, Sony's move into high-res audio has prompted a new line of Walkmans, of which the NW-ZX2 is the flagship.

As such, the specification is comprehensive. The Sony is an Android-based device with 128GB internal memory, able to be augmented by microSD cards by a further 128GB. As the NW-ZX2 supports the Google Play Store, you can additionally listen to and watch content on installed apps.

To ensure that this sounds as good as possible, Sony has built the ZX2 around a compact version of its S-Master digital amplification and decoding system. This allows the NW-ZX2 to replay pretty much every audio file type you might reasonably expect (MP3, FLAC, WAV, DSD, etc) up to 24-bit 192kHz.

## Hey, good-lookin'

The silicon is wrapped in some especially hefty casework. The NW-ZX2 tends to appear a bit

austere in photos but in the flesh it looks and feels absolutely fantastic. Neither is the Sony a piece of minimalism either. As well as the headphone output, you get NFC Bluetooth with Sony's data-heavy LDAC transmission tech and the company claims an impressive (if



The NW-ZX2 adds Android apps to the hi-res Walkman market

slightly optimistic) 33 hours of battery life with continuous hi-res playback. The real fly in the ointment is that the display is a rather less than high-def 854 x 480 and the operating system is Android 4.4, which feels a little old-fashioned.

Watching video on this portable player is perfectly stable and impressively colourful but rather lacking in visual punch. Sitting through *F&F 7* on the Sony is a strangely anodyne experience. The difference in physical size between the NW-ZX2's display and that of a high-end mobile isn't great, but the lower res

has a huge impact on the viewing experience.

The soundtrack is a different matter, though. In audio terms, the NW-ZX2 is a different beast to Sony's Xperia smartphones. The dedicated headphone amplifier is able to deliver volume levels that handsets can only dream of and this is combined with a smooth, refined and detailed presentation. With CD-quality material – which also applies to the well-sorted Tidal Android app – the NW-ZX2 is exceptionally good; let it loose with high-resolution material and it really shines. There is an almost liquid quality to the top end.

Sony offers a system called Clearaudio +, which is intended to optimise audio playback, but this can be a bit too much of a good thing. Bass which is punchy and agile with no processing can become a bit overblown when Clearaudio+ is engaged. It is useful at boosting the performance in noisy spaces though.

At a whisker under £1,000, the NW-ZX2 is an expensive proposition and if you plan on watching/surfing as much listening, it probably isn't ideal. As a piece of portable audio equipment though, it's a bit of a superstar. Someone with a long commute and some decent cans will find the latest Sony Walkman worthwhile ■

## SPECIFICATIONS

**MEMORY SIZE:** 128GB with 128GB extra available via microSD  
**SCREEN SIZE/RESOLUTION:** 4in, 854 x 480  
**AUDIO FORMATS:** AAC, AIFF, ALAC, DSD, FLAC, HE-AAC, Linear PCM, MP3, WMA  
**VIDEO FORMATS:** AVC (H.264/AVC), MPEG-4, WMV 9  
**CONNECTIONS:** 3.5mm headphone socket; microSD input; stereo mini jack input; WM port; USB input  
**DIMENSIONS:** 65(w) x 131(h) x 18(d)mm  
**WEIGHT:** 235g  
**ADDITIONAL FEATURES:** Android 4.4 operating system; Google Play Store access; Bluetooth (NFC and LDAC) and Wi-Fi connection; ClearAudio+; Clear Bass; DSEE HX; Dynamic normalizer; five-band equalizer; battery life claimed at 33 hours (continuous hi-res playback) and 60 hours (continuous MP3 playback); 4.5-hour full battery charge

## HCC VERDICT



### Sony NW-ZX2

→ £950 approx → [www.sony.co.uk](http://www.sony.co.uk)  
 → Tel: 0207 365 2810

**HIGHS:** Superb audio performance; impressive specification; great build quality

**LOWS:** Limited video resolution; rather expensive

**Performance** ★★★★★  
**Design** ★★★★★  
**Features** ★★★★★  
**Overall** ★★★★★

## AV INFO

**PRODUCT:** Android-based portable audio and video player

**POSITION:** The flagship product in the Sony Walkman range

**PEERS:** Apple iPhone 6S+; Acoustic Research AR-M2



# Fire TV embraces 4K

Faster and more powerful, Amazon's second-generation UHD-ready media streamer is a home cinema must-have, says **Steve May**

**WHILE THE TRADITIONAL** content providers have been slow to muster 4K arms, OTT streamers have really got the bit between their teeth. Amazon's second-generation Fire TV media box confounds expectations in that it's both 4K-enabled and unfeasibly cheap at just £80. Indeed, Amazon itself doesn't even attach a premium to its UHD service – you just need an Amazon Prime subscription (£79), or be prepared to Pay-Per-View (not great value).

Cosmetically this new model follows the diminutive lines of its predecessor. Laid flat, it stands 17.8mm high and can easily piggy-back atop more substantial items in your kit rack. There are differences, though. The optical digital audio output has been ousted, replaced here by a microSD card slot. While this can't be used for any media playback (so don't try and view photos, music or videos) it does provide significant extra storage space for apps (up to 128GB). The box itself has 2GB of onboard memory, with 8GB storage, enough for the media service apps you'll want to use. However, start downloading Amazon's casual games and you'll quickly run out of space.

The games themselves look and play well. A MediaTek quad-core processor means the box is 75 per cent faster than the original player, and an Imagination Technologies

Power VR GX6250 graphics engine keeps things pretty. With more horse power at its disposal, it's also a better Plex media server client than its forebear. The box also offers superior voice search via a diddy remote with integrated microphone.



Both Netflix and Amazon Prime Instant Video UHD services are supported via its HEVC decoder – and between the two that equals a healthy amount of 2,160p content. Both offer a growing number of 4K TV shows – including *Bosch*,

*Better Call Saul*, *Marco Polo*, *Daredevil* and *Jessica Jones* – while Amazon is stacking up the movies. *Elysium* is a standout offering, but there's also a wide range of stuff from *Fury* to *Spider-Man 3*, via *Ghostbusters 2* and *MIB 3*. Image quality is generally excellent. Fine detail appears extremely high, and there are no overt compression artefacts. It remains to be seen how this will compare with UHD Blu-ray, but for now we can confidently say picture quality is superior to streamed HD.

## Hardware requirements

To receive the UHD connection you'll need a fast fibre broadband connection on the right side of 15Mbps. The little box is also HDCP 2.2-enabled, which means that to see UHD images your display needs a 4K input that supports it. Without HDCP 2.2, the Fire TV 4K will simply present you with HD. Similarly, while there's Wi-Fi (and Bluetooth) onboard, you'll want to use the Ethernet connection to secure UHD streams. 4K itself is limited to 30fps, the standard for movie and TV content.

It's not yet capable of delivering HDR, although Amazon doesn't rule out a firmware update at some point to allow this. Audio varies depending on content but multichannel can be delivered over HDMI.

Overall, I can't think of any reason not to buy this new iteration of Fire TV, even if you don't yet have a 4K display. It's fast and powerful, features a brilliant UI and works well as a regular catch-up TV device. Just get one ■

## SPECIFICATIONS

**CONNECTIONS:** HDMI output; Ethernet; USB; microSD card  
**AUDIO FORMAT SUPPORT:** Dolby Digital Plus; FLAC; MP3  
**VIDEO FORMAT SUPPORT:** HEVC H.265/H.264  
**DIMENSIONS:** 115(w) x 17.8(h) x 115(d)mm  
**WEIGHT:** 270g  
**FEATURES:** Bluetooth 4.1; dual-band Wi-Fi; voice search via mic-integrated remote; video output of 2,160p up to 30fps, 720p and 1,080p up to 60fps; controllable via Fire TV Remote app; Power VR GX6250 600MHz GPU; MediaTek quad-core processor; 8GB storage (expandable via microSD)

## AV INFO

**PRODUCT:** 4K media player

**POSITION:** Amazon's current flagship streamer

**PEERS:** NVIDIA SHIELD; Roku 4; Apple TV; Now TV

## HCC VERDICT

### Amazon Fire TV 4K

→ £80 approx → [www.amazon.co.uk](http://www.amazon.co.uk)

→ Tel: 0800 496 1081

**HIGHS:** Excellent 4K picture quality with fast broadband; fast, attractive UI; superior voice search; expandable storage

**LOWS:** HDCP 2.2-enabled HDMI 2.0 input required on display; currently no 40D catch-up

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★

Yamaha's flagship AVENTAGE processor offers  
**Richard Stevenson** an instant next-gen AV upgrade

# Turning home cinema up to eleven

**YAMAHA IS NO** stranger to 11 channels of fun. From 2008's mighty Z11 amplifier to the more recent CX-A5000, the company hasn't been shy about adding extra channels to native surround sound formats. Yet the CX-A5100 reviewed here goes a step further.

How? By introducing Dolby Atmos and DTS:X decoding to its *War and Peace*-esque feature list. Consider me excited.

As indicated by the model number, the CX-A5100 is an evolution of its predecessor rather than a complete revolution. Those familiar with the old model would be hard-pushed to see any difference from the front, whether you choose it in its titanium, black or eye-catching gold finish. Yet look around the back and you'll discover the connection department has had an overhaul, dumping S-video sockets and adding XLR connections for the two subwoofer outputs. Also noticeable is the antenna for the newly-built-in Wi-Fi connection; Bluetooth is now integrated too. And while the 7-in/2-out HDMI section looks the same (there's a front input, too), they're now 2.0a spec boasting 4K/60p and HDCP 2.2 compatibility, and HDR support via a firmware update.

Internally there are a number of minor component tweaks and upgrades, but this new model is all about additional features and formats rather than an electronic redesign. As the original was an *HCC* award-winner in 2013, that's no bad thing. In addition to Atmos and DTS:X processing, the new kid on the block gets better networking features with Apple Lossless and DSD support, and full compatibility with Yamaha's MusicCast wireless system. All this goodness is on top of the suite of features and top-spec hardware that came with the original CX-A5000, including AirPlay, ESS Sabre DACs, four-zone



multiroom, Yamaha's compressed Music Enhancer and more scope for sonic tweakery than your average movie production studio. There is less scope for adjustment on the video side, though, and no ISF calibration option.

One thing that hasn't changed for a few generations of Yamaha receivers and processors is the GUI. It is divided into two distinct areas, graphical setup screens and text-based option menus, albeit decorated with a few graphics. Both are relatively pretty, but look fuzzy and low-res and feel dated. A key omission is any form of explanation onscreen of what each feature actually does. So when you are faced with the decision to enable, for example, 'object decode mode' it's time for a romp through the digital manual to find out whether it's a worthwhile upgrade to your sound or a self-destruct sequence.

## Partners in crime

Unlike competitors, including Marantz's AV8802A (see *HCC* #253), there's no cabling setup wizard. And the matching MX-A5000 power-amp, unchanged since our review on the CX-A5000/MX-A5000 duo back in *HCC* #228, confounds the cabling issue by having ➤

As an AVENTAGE model, the CX-A5100 features a fifth foot (above); the remote (left) is backlit



## AV INFO

**PRODUCT:**

11.2-channel  
3D audio  
AV processor

**POSITIONING:**

Yamaha's flagship  
AV product

**PEERS:**

Marantz AV8802A;  
Onkyo PR-SC5530



'There is no denying  
this processor's appeal  
– it offers home  
cinema enthusiasts  
plenty to play with'





The Yamaha employs ESS Sabre Ultra DACs for all channels

one of the most baffling input and output labelling protocols I've ever seen. For instance, the XLR/phono inputs have small switches that allow one input to feed two outputs, or sometimes three. Simple, it isn't.

What has been upgraded for the CX-A5100 and is now out there at the cutting-edge of AV awesome is the YPAO setup procedure. Now based on 64-bit signal processing and using Yamaha's 3D mic stand, the process is swift and so accurate there is no need to even preset speaker patterns before starting. The system identified my speaker lay-out, distances and precise angles, setting the CX-A5100 into Atmos layout and showing it as such onscreen. Now that is cool.

**'The CX-A5100 creates a BIG sound, with unrivalled clarity and separation of effects from every direction'**

YPAO finished, the key question is what setting to run the EQ in. You have the option of Off, Manual, Flat, Front or Natural. Manual offers eight parametric filters, each with frequency, gain and Q control, for every one of the main eleven channels, so is an option for those with a spare month or two. With my Atmos setup (7.2.4), EQ in 'Flat' mode created a near ruler response across the main channels, which in a slightly live room came across a bit frisky and bright. 'Natural' mode offered a little less EQ intervention and hit a real sweet spot of spacey atmospheric, huge soundstage and balanced frequency response.

This was aptly demonstrated with the Atmos soundtrack to *Jupiter Ascending*. The CX-A5100 delivers a sound at absolutely full-throttle, creating an adrenaline rush of sharp effects and massive LF explosions, with a top-end edge that etches everything from glass smashing to the sibilant dialogue with a gritty reality. As Caine battles the Sargorn hand-to-hand with the industrial planet

collapsing around them, the Yamaha laps up the challenge of recreating the audio chaos through all channels. It is a BIG sound, with unrivalled clarity and separation of effects from every direction. A glass floor smashing has a searing edge and eye-watering reality, buildings wrench and tear apart with the sounds of bending and twisting metal and an ever-present roar of fire fills the sonic backdrop. It's an utterly addictive presentation for action movies, full-on and in-her-face with no chance of taking a breath. When Jupiter fights Eddie Redmayne's fabulous baddie Balem Abrasax you feel every blow. Just try watching her hit him repeatedly with the iron bar without wincing.

The CX-A5100 is certainly no laid-back smoothie of a processor, then. It revels in action and adventure with a passion bordering on obsession. Add in the equally-lively sounding MX-5000 power amplifier and the effect is blisteringly frantic. Actually, I found the balance of the combo setup, particularly in Flat EQ mode, a little too raw and edgy, and a bit fatiguing after extended listening. *Shaun the Sheep Movie* (5.1 DTS) felt light and forward-balanced rather than warm and enveloping, and personally I prefer the more fluid presentation of Marantz's AV8802A. That processor costs fully £850 more, though, and doesn't have a matching 11-channel power amp. Hmm.

Switch to broadcast sources and the Yamaha excels at turning even slightly compressed-sounding TV material into a sonic fiesta. The new *Dr Who* series leaps out of my speakers with articulate dialogue and effects so crisp you can almost hear their BBC SFX Department serial numbers.

#### Obvious upgrade

There is no denying the CX-A5100's appeal. It offers home cinema enthusiasts plenty to experiment with – particularly the sheer scope of adjustment in the new YPAO implementation – and is an obvious upgrade to any processor unable to cut it in today's world of 3D audio formats and 4K video. Sonically, it's a high-octane star ■

#### ON THE MENU



→ Ramp up the fun with Yamaha's AV Controller app, which provides a more interactive experience than the stoic GUI

#### SPECIFICATIONS

**DOLBY ATMOS:** Yes  
**DTS:X:** Yes (via future firmware update)  
**AURO-3D:** No  
**MULTICHANNEL INPUT:** Yes. 7.1 plus phono MM  
**MULTICHANNEL OUTPUT:** Yes. 11.2-channel (balanced XLR and unbalanced phono)  
**MULTIROOM:** Yes. Zone 2, 3 & 4 and MusicCast  
**AV INPUTS:** 6 x composite; 6 x digital audio (3 x optical and 3 x coaxial)  
**HDMI:** 8 x inputs; 2 x outputs (HDMI 2.0a)  
**VIDEO UPSCALING:** Yes. To 2,160p  
**COMPONENT VIDEO:** 3 x inputs; 1 x output  
**DIMENSIONS:** 435(w) x 474(d) x 192(h)mm  
**WEIGHT:** 13.5kg  
**ALSO FEATURING:** 64-bit YPAO EQ; MusicCast integration; AirPlay; native Apple Lossless and DSD support; Wi-Fi and Bluetooth; Apple iOS and Android control apps; USB with iPod compatibility; Ethernet; FM and internet radio tuner; Pure Direct sound mode; AVENTAGE design and construction; ESS Sabre Ultra DACs for all channels; 2 x 12V triggers; 4K passthrough; Cinema DSP; Compressed Music Enhancer

#### HCC VERDICT



#### Yamaha CX-A5100

→ £2,500 approx → [www.yamaha.co.uk](http://www.yamaha.co.uk)

→ Tel: 0844 811 1116

**HIGHS:** Fast and exciting sound; YPAO EQ; highly tweakable; cutting-edge HDMI and networking; MusicCast

**LOWS:** Perhaps a bit too fast and exciting for some; complex to set up; dated GUI

**Performance** ★★★★★

**Design** ★★★★★

**Features** ★★★★★

**Overall** ★★★★★



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# Optoma projector gambles on Darbee

Can the addition of Darbee's video processing engine give a projector an edge in the cut-throat sub-£1,000 market? **John Archer** investigates

## AV INFO

### PRODUCT:

Single-chip DLP projector with Darbee Visual Presence processing

### POSITION:

One of many affordable Optoma PJs

### PEERS:

BenQ W1080ST+, Epson EH-TW5300, Acer H7532BD

**WHILE SOME BUDGET** projectors have certainly delivered remarkably enjoyable pictures in recent times, one thing I wouldn't expect to find on a sub-£1,000 projector is heavy-duty video processing. Yet that's exactly what you get with Optoma's new £700, DLP-based, HD28DSE.

The processing in question is the Visual Presence engine (DVP) from US video specialist Darbee. Regular readers will know this as a real-time image processing tool also available in a standalone box or integrated into Blu-ray players from Oppo and Cambridge Audio (see *HCC* #253 for our review of the latter's CXU player). Darbee strives to lend a greater sense of depth/pop to a 2D image.

Backing up the DVP processing on the Optoma are a native 1,920 x 1,080 pixel count, a 3,000 Lumens maximum brightness output and a claimed 30,000:1 contrast ratio – the latter delivered via a dynamic black feature that adjusts light output according to content.

All this fine-sounding spec and tech comes housed in an attractive living-room-friendly casing that combines plenty of soothing curves with a cute white finish. One side of the HD28DSE proffers connections, including twin HDMI's, a 12V trigger output, a port for attaching Optoma's optional 3D transmitter (you'll also need to spend extra for 3D glasses), and a powered USB port that can be used for streaming video via the likes of Google's Chromecast dongle or Amazon's Fire TV stick.

The PJ is compatible with an optional wireless HDMI system – the £180 WHD200 – should you wish to streamline installation.

Joining the HD28DSE's video processing brains is a 10W speaker. While you still get the inevitable dislocation issue when using this, whereby the sound doesn't seem attached to the projected pictures, it certainly delivers more distortion-free volume and dynamic range than other built-in PJ squawkers.

The Optoma's 12V trigger can be used for automated screens



## Installation niggles

Getting setup with the new Optoma didn't prove an entirely happy process, chiefly because the PJ doesn't offer much optical zoom (just 1.1x with a subsequent throw ratio of 1.48-1.62:1) or any vertical image shifting. The latter could well leave you having to use digital keystone correction to get picture edges straight.

## 'Adding Darbee to the HD28DSE has given the PJ a genuine USP – image quality can enjoy a real boost'

The headline Darbee feature makes a good jumping off point to discuss the Optoma's image quality. And, as my colleagues have found with previous Darbee kit, it's successful, to a point. Of the three modes offered – Full Pop, Hi-Def and Gaming – I found the former unusable. Sure, it creates a very dynamic image, but dark scenes like Moses' night-time chats with God in *Exodus: Gods And Kings* suffer with missing shadow detail, and there's some startling colour spiking noise around highly contrasted elements like the monitoring desks in Tom Cruise's 'home' in *Oblivion*.

Hi-Def mode is much better, but only if you commit to tweaking it depending on the content you're watching. For instance, it struggles with grainy films like *300*, causing some strange blocking noise unless reduced to below its '50' level. But with relatively pure, polished transfers like *Oblivion* and *Exodus*, I felt this mode actually delivers the best results at around its 80 level. The processing really can boost picture quality. There's a much greater sense of perceived detail and an enhanced sense of depth. Even when running at a reduced-strength setting with grainy sources the Hi-Def mode impresses. The Gaming mode also works well during console or PC play, significantly enhancing the

sense of sharpness in the relatively simple visuals on show (although I wouldn't recommend using the Gaming mode for any other sort of content).

Some enthusiasts are inherently hostile to heavy-duty video processing. But for me, adding Darbee to the HD28DSE has given Optoma's projector a genuine USP. I just wish the processing was cleverer about auto-optimising itself to different content.

Looking for other strengths of the HD28DSE beyond the Darbee system, it's a talented colour performer. There's an impressive combination of dynamism and subtlety. Pictures are bright, meaning you can comfortably use the projector in a little ambient light, and the brightness helps the HD28DSE perform credibly with 3D too. Images enjoy plenty of punch even when you're wearing the active shutter glasses. There's scarcely any crosstalk ghosting noise either, even with *Jurassic World's* night-time scenes. Dark images do lack depth through lost shadow detail, however, and, weirdly, you'll likely need to activate the 3D inversion feature to get 3D pictures looking right. But overall the HD28DSE justifies spending extra on the 3D transmitter/glasses.

## Somewhere over the...

There are two areas where the HD28DSE falls short of some rivals. Firstly, I was distracted at times by DLP's rainbow effect. Secondly, the projector's black levels are pretty average – especially as you can't really use the Dynamic Black system because the shifts in brightness it causes are so aggressive.

These average black levels, slight rainbowning and unusual focus on video processing mean the Optoma won't suit everyone. Personally, though, once I'd sorted out a few teething problems I grew quite fond of it; certainly there were at least moments where a well-tweaked Darbee engine helped the HD28DSE produce some of the best projector pictures I've seen for £700. As such, I recommend anyone in the market for a new affordable PJ gives this an audition ■

## SPECIFICATIONS

**3D:** Yes. Active (transmitter and glasses are optional extra)

**4K:** No. 1,920 x 1,080

**CONNECTIONS:** 2 x HDMI (one with MHL support); 3D Sync Transmitter port; 3.5mm audio output; powered USB port; 12V trigger

**BRIGHTNESS (CLAIMED):** 3,000 Lumens

**CONTRAST (CLAIMED):** 30,000:1

**DIMENSIONS:** 315(w) x 114(h) x 214(d)mm

**WEIGHT:** 2.58kg

**FEATURES:** Single-chip DLP projection system; built-in 10W speaker; can stream via USB video dongle systems; 8,000-hour lamp life (claimed, Eco mode); 28dB fan noise; Darbee Visual Presence processing engine; 1.48-1.62:1 throw ratio, 1.1x optical zoom; vertical and horizontal digital keystone correction



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**HIGHS:** Darbee processing can add stunning sharpness and depth; plenty of brightness; good colour handling; impressive value

**LOWS:** Darbee processing requires adjustment for different sources; black levels not the best; some obvious rainbow noise

**Performance** ★★★★★

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**Overall** ★★★★★

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'With its white and colour light output of 2,200 Lumens, Epson's PJ is suited to both living rooms and blacked-out movie dens'



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The closing date for this competition is December 21, 2015. Please read the terms and conditions (below) before sending in your entry.

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**REVEALED**

# The Beeb's surround sound secret

It's been at the forefront of terrestrial 5.1 TV broadcasts for years – now the BBC is harking back to a bygone age and resurrecting four-channel sound for radio. **Martin Pipe** tunes in

**THOSE WITH LONG** memories will recall quadraphonics. The original home surround audio system, it was the talk of the tech town in the 1970s, gaining impressive support from both kit makers and content producers. While eventually a commercial failure, four-channel sound – 4.0, as opposed to the 5.1 that's the basis of most home cinema – is far from dead even today. The BBC has quietly been using it for some radio broadcasts, if you know where to look. Programmes getting the surround treatment are generally concerts and drama.

The most recent broadcasts were Radio 3's Prom concerts, every one of which was available in 4.0. Previous programmes have included an absorbing 4.0 sound collage by the Spanish avant-garde musician Francisco López, broadcast live from East London's Café OTO, and a 5.1 production of Dylan Thomas' *Under Milk Wood* that dramatically allocated a different actor to each channel.

The Beeb has been experimenting with surround sound radio since the mid-1970s, when it added its own format – known as Matrix-H – to the perplexity of incompatible quadraphonic systems. Technology has changed beyond recognition since. The corporation no longer uses 1970s matrix-encoding technology to squeeze the four channels of a quadraphonic performance into the two of a radio broadcast. Such systems – which had to be backwards-compatible with mono and stereo receivers – give quadraphonic broadcasts great 'reach', but it is all but impossible to avoid leakage between channels – and the soundstaging confusion that results. So the BBC is instead now using a high-tech system that is as discrete as Dolby Digital

or DTS – and the same one is capable of being deployed for 4.0 or 5.1 presentations, as content dictates. Music tends to be carried in 4.0 form, as the centre speaker is redundant here; 5.1 is, more often than not, used for drama.

## Time to boot up

To tune into these streams, you need a PC with HDMI output (or multichannel soundcard) to feed your AV gear (see box, right, for more). I tried a WeTek multimedia player (as reviewed in *HCC* #253) with the recommended Google Chrome browser, but that turned out not to support the BBC's offering. So I relied instead on the Acer Revo One mini-PC I tested in *HCC* #250.

Regardless of your choice of hardware, you must remember to disable system sounds in Windows, or invitations to update software might provide an unwelcome distraction from the music...

The Proms 4.0 surround feed was carried live and 'raw', meaning that there were no radio announcements or talks. Its intention was to provide a listening experience closer to being in the Royal Albert Hall than stereo radio could allow. No iPlayer-type catch-up service was offered; you had to listen to it as it was broadcast.

Although '70s quadraphonics were intended to be experienced with speakers essentially placed in the four corners of the room, the BBC's 4.0 streams were optimised for (and monitored with) audio systems with speakers arranged in the common 5.1 config. The centre and subwoofer channels are inactive.

So what was involved at the transmission end of Proms 4.0 streams? I spoke to Radio 3 Operations

Radio 3 broadcast the 2015 Proms live from the Royal Albert Hall – we hope its OB truck didn't get a parking ticket...





Manager Huw Robinson who filled me in on the techie aspects: 'Sampling rate is 48kHz and the resolution 16-bit. The channels are coded as two-channel pairs – front and rear – and a single-channel element (centre, fed with digital silence)

## 'In order to achieve a convincing surround balance from a 100-piece orchestra, around 140 microphones were used'

which we include to ensure the correct layout at the receiving end. The (lossy) AAC-LC encoder is configured for 320kbps output, and allocates bitrate across the channel elements as required.'

### Adding some ambience

Radio 3's streams can, in theory at least, be totally unique as compatibility with mono or stereo equipment isn't an issue. In practice, though, the Proms stream usually consisted of the two-channel radio mix for the front channels – minus some of the ambience, like audience hustle and indirect/reverberant sound. Ambience would instead be carried by the rear channels, which were derived from dedicated arrays of mikes – among them an overhead arrangement of four figure-of-eight ribbon types, known in the trade as a 'Hamasaki square'.

And in order to achieve a convincing sound balance from a 100-piece orchestra, it shouldn't shock you to learn that you'll find an awful lot of microphones at a Proms concert; a total of 'around 140,' Robinson told me. They include '54 slung mikes (suspended from overhead wires) and 58 stage-mike inputs, not all of which are used every day.'

Their outputs are routed, in digital form, to a pair of outside broadcast trucks lurking nearby – one for radio, and another for television. In these, you'll find enormous consoles on which engineers mix and balance the audio uniquely for their specific medium. The soundtracks of Proms TV broadcasts include commentary and are mixed for 5.1,

and the results are audibly different to Radio 3's raw 4.0 streams.

'The BBC has been producing 5.1 for TV broadcasts for over 10 years now,' explained TV sound mixer Andy Payne. 'Last Night of the Proms was amongst the Beeb's very first live 5.1 surround broadcasts.' Payne mixes for 5.1, and subsequently reduces that to two-channel for standard-def TV.

When asked about the challenges of simultaneously mixing the 4.0 stream and stereo radio broadcast radio in real time, Robinson told me he applies the same 'tried-and-tested' methodology that ensures mono and stereo radio listeners are equally happy. 'The stereo mix is the priority, but the balancer will be checking the surround compatibility throughout.'

### Listening in

In my view, the use of rear speakers definitely enhanced the listening experience. You gained a good sense of the Royal Albert Hall's acoustics and thus that 'being there' feeling. Another benefit was the lack of commentary and the extended applause. Indeed, the audio wasn't faded out for some time – as a result, you could hear what was going on in the hall. Musicians tuning up their instruments and equipment being shifted around were regular themes, but sometimes conversations were distinctly audible. On one occasion, the mikes were left accidentally open between Proms. During the ensuing hour, listeners were treated to the sound of the vocalist practising her scales, and a full sound-check (with comments). I felt a bit like Gene Hackman in *The Conversation*....

It's a shame that more wasn't made of four-channel's potential when chances arose. One Prom, which featured the SWR Symphony Orchestra from Germany in a performance of music by Ligeti, had instruments panning around the soundstage quite effectively, but the late-night *Wireless Nights* Prom hosted by Jarvis Cocker felt like a missed opportunity considering the full potential of four-channel sound and the dramatic content.

Yet these are broadcasts that can be cherished, and I hope that iPlayer is updated to support surround or that other means of transmission are found. My recommendation would be an additional

but independent multichannel soundtrack carried alongside the HDTV broadcasts, which could be timeshifted at whim. Although I love surround sound, I don't appreciate being tethered to a PC.

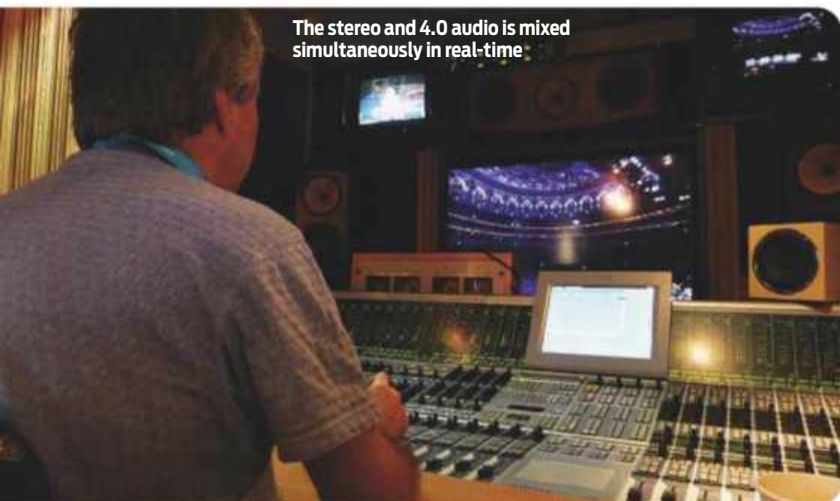
In the meantime, the next 4.0 surround stream from the Beeb is scheduled to take place on New Year's Day. Carried as part of Radio 3's *Hear and Now* strand, it will be a complete performance of the electroacoustic work *Hymnen* from legendary surround sound pioneer/composer Karlheinz Stockhausen. Expect it to give your system a good workout... ■

## Where to find the Beeb's 4.0 radio streams



To enjoy these broadcasts a computer, rather than a radio tuner, has to be connected to your AV setup. This is because the BBC's experimental surround sound service is, in its present form, only available online.

To access the stream, you visit a webpage that incorporates an embedded player. During the Proms, it could be found at <http://bbc.in/1LqpUEY>, although as the Proms are now finished, all the page displays is a 'pilot ended...' message. However, a test player, provided to ensure your channels are lined up correctly is at the time of writing still active (<http://bit.ly/1PaUs08>). Any new programming of this type is likely to be announced on the BBC's Taster webpage (<http://bbc.in/1Gx15Zy>) and, hopefully, the relevant BBC listings page, too.



The stereo and 4.0 audio is mixed simultaneously in real-time

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# DIGITAL COPY

Kill trailers, bring back intermissions and go large. Do this and commercial cinemas might tempt **Mark Craven** to leave the house if he isn't too busy cleaning his vinyl collection

**IN THE LAST** issue I discussed the growing use of wide formats in broadcast TV and my love of 2.0:1, 2.35:1 and beyond. And shortly after putting pen to paper (well, finger to keyboard) I departed for the National Media Museum in Bradford for a Cinerama screening of Stanley Kubrick's *2001: A Space Odyssey*, the closing presentation of the museum's Widescreen Weekend festival.

I'm so glad I did. The chance to reacquaint myself with Kubrick's suggestive sci-fi as it was originally shown all those years ago proved utterly mesmerising, with an introduction and post-movie discussion by VFX master Douglas Trumbull the icing on the cake. I'll definitely be returning to the festival next year.

Equally, however, I came away from the *2001* screening remembering how great cinema can be if it's done right. Let me explain...

A good cinema experience can, and should be, about more than just the movie itself. For *2001*, there was a buzz around the whole event. Before a frame had even been shown, the packed house sat in quiet anticipation while the prelude score (György Ligeti's beguiling, unnerving *Atmosphères*) oozed from the speakers.

Then the movie unspooled onto the curved screen, without any need for trailers or meerkat-loaded adverts. Trailers are a ridiculous notion these days. Film fans in 2015 are bombarded with pre-movie hype via TV, radio, print media, websites, Facebook, Twitter and more. There's no need to bother them while they're actually at the cinema.

Furthermore, as we watched apes toss bones into the air and men zip around the surface of the moon, theatre goers sat stock still. No one shuffled sheepishly up the aisles to nip to the bathroom. Why? Because everyone knew the screening was

to feature an intermission. I haven't enjoyed one of these since I saw *Indiana Jones and the Last Crusade* in the Summer of 1999, and I wish they would return. There is no harm in breaking a film in two (especially 150-minute bloaters like *Spectre*), and the benefits are obvious. I'm sure cinemas wouldn't mind bringing them back either (they encourage popcorn sales, no doubt).

And then there was that large screen: **often I've found myself in room no. 9 at a cramped multiplex, watching Hollywood spectacle on a screen no larger than a family car.** Nor did it matter that the print was a little worn and the audio a little thin. Rather, I loved the analogue-ness of it.

This is how movies should be shown. The cram-them-in, push-them-out and drown-them-in-marketing ethos pursued by many commercial chains is a vibe-killer. The good news is that you can replicate these positives in your home cinema. And when you do venture out, my recommendation is to be selective about what you watch and where you watch it. And ask for Douglas Trumbull to stop by.

## Stereo anxiety

On a separate note, I'm worried I may be turning into an audiophile. A visit to the Hi-Fi Show Live 2015 at the end of October (a two-day event organised by HCC's sister magazine *Hi-Fi News*) may have obviously been short on surround thrills but remarkable two-channel demos featuring monstrous floorstanding speakers (KEF Muon, Sonus faber Venere S, Dynaudio Contour S) and high-end hi-fi separates mean I'm starting to think I should buy a turntable. Oh dear ■

*Is your local cinema one of the good ones?  
Let us know: email [letters@homecinemachoice.com](mailto:letters@homecinemachoice.com)*

**Mark Craven** is happy to admit that the ending of *2001: A Space Odyssey* still leaves him confused. But he's also confused by the ending of *Ocean's 11*...





# FILM FANATIC

**Anton van Beek** believes 3D Blu-ray needs to keep on going – if only so he can get his hands on stereoscopic versions of some of his favourite B-movies...

**AS MUCH AS** I love home cinema, it's not particularly often that I experience a visceral reaction when merely reading about our beloved hobby. But I must confess to feeling a little choked up after perusing John Archer's *Five Years of 3D TV!* feature in the previous issue of *HCC*.

For those of you who didn't get around to picking up last month's mag, the article in question looked back across the highs and (much more common) lows of stereoscopic home cinema since the first 3D TVs arrived in the UK in the Summer of 2010. From active to passive screen technology, shooting native 3D vs post-conversions and LCD vs plasma, my goggle-eyed colleague outlined the many hurdles 3D home cinema faced, and how it crashed head-long into almost all of them, coming a complete cropper along the way.

Now I'm sure a large proportion of *HCC* readers finished the piece and said things like 'Good riddance', 'No more watching movies in silly spex for me', and 'Is James Cameron ever going to stop faffing around in submarines long enough to shoot *Avatar 2*?'. Well, I wasn't one of them (apart from the last bit, of course).

## Changing my mind

Over the years I've devoted plenty of column space to 3D, starting with *HCC* #174 (November 2009), where I returned from a 15-minute IMAX preview for *Avatar* decrying the technology as 'the cinematic equivalent of the Emperor's New Clothes' and 'the same old tired 3D nonsense that Hollywood has been peddling for decades'. Interestingly, while my opinion of Cameron's sci-fi blockbuster hasn't changed since then (it still sucks), my feelings about 3D certainly have.

You see, as a cinephile I want to own the definitive version of a film. And this extends as far as always choosing to buy the 3D incarnation of a Blu-ray over its alternate (and cheaper) 'flat' release. Not that 3D is my preferred viewing option by any stretch of the imagination, but, **if a film was shot and/or conceived of in 3D and saw the inside of cinemas in that format, then that makes the stereoscopic release the definitive hi-def package.**

So what does any of this have to do with almost shedding a tear when reading an article about how 3D home cinema is evidently on its last legs? For me, it's a two-fold problem...

The first issue is that there are still countless 3D films that have never been released on 3D Blu-ray. And it appears more and more likely they never will. As great as it is to be able to experience 1954's *Creature from the Black Lagoon* in its native 3D whenever I want, I'll probably never be able to do the same with 1955's *Revenge of the Creature*. Or *Bwana Devil*, *It Came from Outer Space* or *Flesh for Frankenstein*. How sad.

The second problem is the lack of provision for 3D presentations in the Ultra HD Blu-ray specification. It seems I'm going to be asked to choose between a dazzling Ultra HD disc and a regular Full HD 3D Blu-ray when the next *Gravity*-style stereoscopic showcase turns up.

The worst-case scenario is that 3D ends up phased out entirely on traditional Blu-ray due to a lack of interest. If that happens, I'll end up scouring charity shops for discarded 3D platters, just like some of us did with HD DVDs back in the day... ■

*Are you a 3D Blu-ray fan? How big is your collection of titles? Let us know: email [letters@homecinemachoice.com](mailto:letters@homecinemachoice.com)*

**Anton van Beek** has been hit by the realisation that he'll have to buy a copy of Tim Burton's *Alice in Wonderland* if he wants a complete 3D BD collection!





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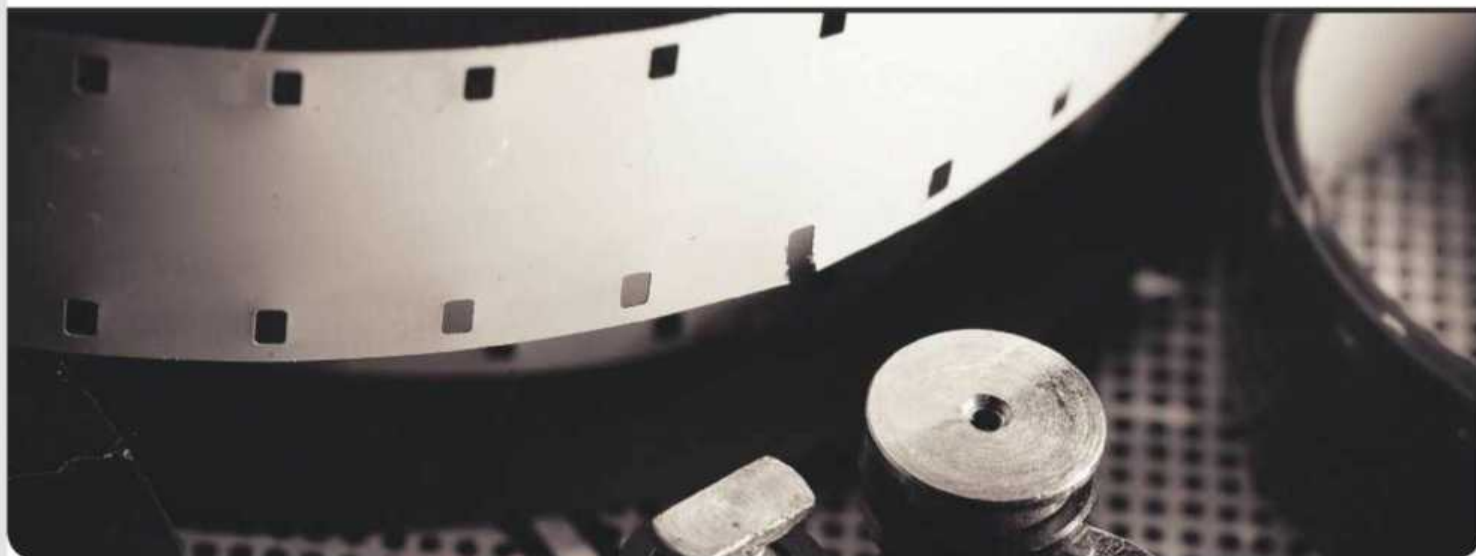
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# PICTURE THIS

From refresh rates to rogue processing, video calibrator **Vincent Teoh** lists the common causes of judder on your display, and suggests you pay attention to settings to cure it

**AS TV SCREENS** in households get larger and larger thanks to tumbling prices and the arrival of 4K/UHD resolution, artefacts in the picture are magnified and become more noticeable. One such more apparent – and annoying – artefact is undoubtedly judder, which refers to jerkiness of what should be smooth movement across the screen.

The typical cause of judder in the past was the result of having to display film captured in 24fps (frames per second) on TVs with an internal refresh rate of 60Hz. A telecine process known as 3:2 pulldown had to take place, but because 60 is not fully divisible by 24, each frame needed to be split into fields which were then displayed alternately in an uneven fashion: the first field repeated two times; the second field repeated three times; and so on. The consequence was a regular stutter particularly evident during slow panning shots.

Most midrange and high-end TVs and PJs from established brands these days are able to present film footage at multiples of 24Hz, therefore eradicating telecine judder. For example, plasma TVs like Pioneer's Kuros could refresh 1080p/24 video at 72Hz (3:3 pulldown); while earlier Panasonic plasmas did 48Hz, and later ones refreshed at 96Hz. Some modern LED LCDs and OLEDs can refresh at 120Hz, again a round multiple of 24Hz.

## Smoothing criminals

Such displays are said to be capable of native 24p handling, and shouldn't exhibit the signs of telecine judder during playback of movies. However, it's important to note that even 24fps content can be inherently slightly jerky due to the inability of the low frame rate to catch up with fast motion. That's one reason why most TV manufacturers enable motion interpolation by default to make the image

completely smooth. As this introduces the 'soap opera effect' and destroys the surreality that is integral to the emotional impact of films, I switch it off. If you're a video enthusiast who prefers to watch movies in the manner intended by the director, I recommend that you do, too.

Misapplied in-TV processing is another source of unwanted judder alongside other video artefacts such as screen tearing and combing. For example, forcing film-mode deinterlacing (by accidentally setting Film Mode to 'On' instead of 'Auto') on video-based content like news broadcasts can cause the scrolling ticker to suddenly become juddery and unsmooth. And certain TVs feature undefeatable background motion processing which kicks in when a slo-mo replay cuts back to a fast-action sports broadcast, leading to temporary jerkiness.

**Of course, not all judder is caused by the display – sometimes it can originate from the source device.**

A famous example is the first three generations of the Apple TV, where the video output was locked at 60Hz, which naturally meant that all movies and TV dramas that were filmed at 24fps would display with visible telecine judder. And when the Xbox One was launched two years ago, British and European owners experienced juddering and frame drops when using the live TV feature because the source was broadcast in 50Hz yet the console's output was fixed at 60Hz. A later firmware update adding the option to output at 50Hz resolved the issue.

In a nutshell, judder can come from the display or the source. So try tweaking the motion and film mode settings on your TV/projector, and make sure your playback device outputs 24fps for movies ■

*Does the judder in native 24fps film bug you?  
Let us know: email [letters@homecinemachoice.com](mailto:letters@homecinemachoice.com)*

**Vincent Teoh** has worked as a professional video calibrator for seven years and currently sleeps on a bed of abandoned NEC plasma TVs







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# Feedback

Got an axe to grind? Need to comment on current technology?  
Want to share your knowledge with our readers? **HCC** is here to help

## What a weekend!

I gave some advance news to *HCC* on the National Media Museum's Widescreen Weekend [*Feedback*, *HCC* #250] and as it's been my first such event I thought readers may like to have my comments.

The weekend commenced on Thursday and ran through to Sunday evening. Examples of CinemaScope, Todd-AO and Cinerama were screened together with lectures from movie gurus like Sir Christopher Frayling, Paul Franklin and Douglas Trumbull. There was also an impressive 80-minute student section showing some of the short works of budding film-makers, and the Media Museum gave a fascinating daily 30-minute 'Insight Tour' that

included displays of various widescreen-related artefacts and equipment.

It was a fun-packed weekend with events too numerous to detail here. Programmer Duncan McGregor and his team are to be congratulated for their good work in putting it together.

Of course, the main attractions were the movies and it has to be said that some presentations worked better than others. The three standouts (for me at least) were *Oklahoma* and *2001: A Space Odyssey*, together with the world premiere of the digitally-remastered *The Best of Cinerama* in one-strip Smilebox Cinerama, screened in the presence of the restorer David Strohmaier.

Wide-format versions of *Interstellar*, *Fiddler on the Roof* and *Silent Running* also looked great up there on the big screen. *Holiday in Spain* aka *A Scent of Mystery* in Todd-AO also looked good, although I spoke to several viewers who were decidedly unimpressed by the gimmicky Smell-O-Vision aspect!

The biggest disappointment was *How the West was Won*. This magnificent movie has recently been digitally restored in its original three-strip format and picture and colour are as perfect as you could wish for. However, the presentation was marred by the vertical joins between the three projected images with black or white joins or fuzzy artefacts

visible for a lot of the time. Perhaps future three-strip presentations should be reserved for cinema historians and the like and normal entertainment presentations should be shown using single-strip Smilebox. Next came *A Bridge Too Far*; this copy had a decided pink tone on it throughout due to colour degradation and at one point the film snapped on a joint.

Sadly, Leslie Caron was unable to appear for her interview due to other engagements and unfortunately the *Gigi* print was a little worn in places, although quality did improve towards the end of the film.

When we see how seriously film deteriorates, we should be

## ★ STAR LETTER...

### Retailer won't let me play a Blu-ray through a £5,000 TV!

I absolutely loathe the stupid fad for curved televisions, which suffer from magnified reflection problems and only provide the hyped 'immersive' experience if you are sat directly in front of them. So I have been waiting patiently for LG's flat OLED version to appear, only to find that it's only available from one retailer (Currys, which seems to have an exclusive contract with LG) and only at a main branch, which is not exactly local to us.

Nevertheless, after confirming the store had one, I went along for a demonstration. Unfortunately, they were unable to show 4K video content because of a technical problem with the HDMI signal feed.

Furthermore, to demonstrate a TV properly, it is absolutely essential to see how well it performs with 3D Blu-ray discs,

DVDs and TV (particularly SD TV), so I was dumbfounded to be told that this couldn't be done, as they didn't have a TV signal in the store and they couldn't even connect a Blu-ray player to the TV to play my test discs!

This is ridiculous. Surely they should have realised that this TV is going to appeal to the more discerning and knowledgeable purchaser?

I don't believe that I am being unreasonable in stating that there is absolutely no way that I am going to spend £5,000 on a high-end TV without being able to confirm that it functions to my

satisfaction. After all, I am the 'customer'.

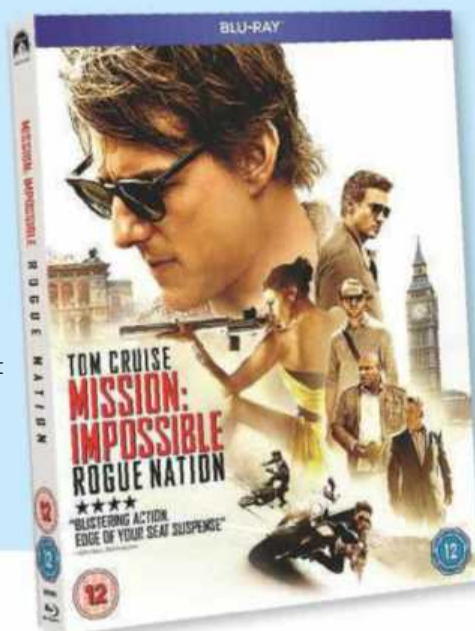
I can only conclude from this that LG has made a serious marketing error in putting all its eggs in this particular basket, as it is quite clear that Currys is

not up to the mark when it comes to selling a premium product like this.

*John Millns, Hants*

**Mark Craven replies:** I'm not privy to the exact ins-and-outs of the exclusivity arrangements between LG (and, indeed, other manufacturers) and Currys. But it isn't unusual to see screens for sale with this retailer and nowhere else. In Currys' favour is the fact that it is the UK's best-known electronics retailer and has plenty of shelf space to stock a wide range.

Your experience sounds very frustrating. While it may be understandable to discover that a retailer is having an issue with 4K playback (this will generally be coming from a server or satellite feed), I agree that it







Panasonic's VT65  
— one of the  
brand's last  
plasma TVs

grateful that so much work is being done to restore many of these wonderful films to make them viewable in cinemas and for domestic use. On my return home, I checked my DVD and Blu-ray

makes perfect sense to allow a potential buyer of a £5,000 TV to at least run a few Blu-rays through it. And that really shouldn't be a problem for an electronics retailer.

We like to tell people to always 'grab a demo' of a new purchase, particularly an expensive one. I'd be interested if other HCC readers have had — or, even better, good! — kit-buying experiences to report.

Star letter-writer John wins a *Mission: Impossible – Rogue Nation* Blu-ray. Packed with breathtaking action and astonishing stunts, *Mission: Impossible – Rogue Nation* is available to buy on Blu-ray and DVD from December 7, courtesy of Universal Pictures Home Entertainment and Paramount Home Media Distribution.

copies of several of the films that I'd viewed over the weekend and was not disappointed with their quality.

So, in the future, will I be a couch potato and stay at home and view on my 90in Scope screen or will I make the three-hour journey to Bradford? Time will tell!

Keith Arnold, via email

**Mark Craven replies:** Cheers for the report Keith, and I'd like to extend a personal 'thank you' to yourself for alerting me to the Widescreen Weekend. I managed to attend the closing presentation of *2001: A Space Odyssey*. See p81 for more.

#### **I'm sticking with my plasma**

Hi. I'm the owner of a Panasonic plasma TV (TX-P65VT65) and before that a 50in Pioneer Kuro. Occasionally I think the time has come to upgrade again. But then I read reviews of new LED TVs having problems with their backlights or motion-smearing and I decide to stick with what I have. Since I bought it the Panasonic has never been anything other than brilliant, with a sharp Full HD picture and amazing black levels, motion and

viewing angle. I see LED TVs in stores that are much newer and not as impressive, beyond being thinner and brighter.

I expect my next TV may be an OLED model once prices have come down but really I am happy to wait. Surely I'm not alone? Until the TV industry can come up with a technology as good as what's gone before it will struggle.

Ally, via email

**John Archer replies:** I know you're not alone! There are plenty of plasma TV owners who remain content with their setups — despite the absence of 4K resolutions. And viewing angles and illumination stability are oft-mentioned bugbears. OLED would appear to be the natural successor. We now have two brands bringing screens to market — LG and Panasonic — and hopefully more will follow.

#### **I don't get your drift**

Hi there. I couldn't help scratching my head after reading the *TV Technology: Tokyo Drift* article in your last issue [HCC #253]. According to the conclusion: 'For most of the world, the Japan-made TV is home cinema history.' This contrasts with the

findings in your Gear Guide in the same issue which rates five out of 10 of the best TVs as Japanese, four out of 10 for Korean and one out of 10 European. The contrast in AVRs is even higher: eight for Japanese brands and two for UK. Are we missing something?

David Murphy, via email

**Jamie Carter replies:** Sorry for any confusion, David. The article was stressing that in Japan there is a passion for Japan-made TVs — as opposed to sets from Japanese brands where production is actually licensed to other OEM manufacturers. Sharp TVs sold in Europe (a result of a licensing deal with Slovakia's UMC) being a good example.

#### **Should I buy OLED or LCD?**

Hi, I'm looking to buy a 55in TV. We have a through-lounge so there's no problem with space. I'm drawn towards the new OLED TV from LG but I also like the feedback from the new Samsung SUHD range. So it would be nice to get an unbiased opinion on both. I'm not concerned about the price: in this instance that doesn't come into it. For me it's all about the picture, and whether there's any motion blur in sport or action ➤

movies. If the picture is pin-perfect as these two sets apparently are that's basically all I want – forget even the smart side or 3D, and as I have surround sound the audio doesn't have to be perfect. I'm open to any advice, even a different make or model. Hope you can help – although at the end of the day I do realise it will be down to me.  
Mick Milton, via email

**Vincent Teoh replies:** If it's all about the picture, then I suspect that LG's OLED TV might work out better for you than the Samsung SUHD range, simply because the former's self-emissive properties allow it to deliver visibly superior black levels (particularly in a dimly-lit environment) and viewing angles than the latter. Both these characteristics – true blacks and the ability to hang onto its contrast and colours even off-axis – in turn provide the ideal canvas for the image to flourish from whichever

position you watch the TV in the room.

As for motion blur, are you upgrading from a CRT/plasma or an LCD? CRTs and plasmas are impulse-type displays which feature high motion clarity due to how the natural decay of phosphors refreshes our retinal persistence, while LG OLED TVs use a sample-and-hold driving method that introduces some motion blurring despite OLED's insanely fast response time. If you're upgrading from LCD, then you shouldn't find the OLED blurry; but if you're upgrading from plasma/ CRT, Samsung's SUHD TVs feature a dark frame insertion mode called LED Clear Motion that mimics the fade-to-black characteristics to reduce motion blur.

If space and budget are non-issues, have you considered the new £8,000 Panasonic OLED TV? We're currently in the process of assessing this, but can safely say it has the best consumer-grade picture quality

around. It's 65 inches, but I don't see why you have to limit yourself to 55in if space isn't a problem. As long as your sources are of decent quality, a bigger screen will provide a more immersive and satisfying viewing experience, especially when it comes to 4K UHD resolution.

### Avatar 2 won't save 3D!

Hi. I enjoyed reading John Archer's look back at the birth of 3D home cinema in the last issue. I have a 3D projector and get pleasure from 3D discs, but don't buy that many to be honest. And I've hardly ever used the 3D feature of my TV.

He suggests that *Avatar 2* could be the next big 3D event and may bring back interest in the format. While I expect James Cameron to deliver a great-looking movie and 3D experience, I just don't think home consumers will ever be ready for 3D. Unless you're lucky to have a big home cinema setup the experience at home just doesn't come close to that of a commercial cinema. And people

just don't like wearing the glasses. I think only a glasses-free 3D TV could make people interested in 3D again, but as Mr Archer says the technology for these isn't ready yet. I'm more excited about 4K HDR Blu-ray!  
Morris, via email

**John Archer replies:** I only suggested that *Avatar 2* might reignite 3D interest – don't hold me to it! As for home cinephiles, I agree that if 4K Blu-ray/HDR really takes off, then putting on 3D glasses to watch a Full HD disc will quickly seem rather old-fashioned ■

### CONTACT US...

Write to HCC, AV Tech Media Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF, or email us at [letters@homecinemachoice.com](mailto:letters@homecinemachoice.com)

**Please note:** we cannot guarantee to print/answer all the letters we receive. Sorry.

# Win! Great Blu-rays up for grabs

Just email your answer to [Competitions@homecinemachoice.com](mailto:Competitions@homecinemachoice.com) to be in with a chance



### Vintage Classics

StudioCanal's 'Vintage Classics' range of digitally restored Blu-rays welcomes two new additions this month – *The Fallen Idol* (1948) is on sale now and *The Raging Moon* (1971)

arrives on November 23. To celebrate, we have three pairs of the Blu-rays to give away.

### Question:

*The Fallen Idol* director Carol Reed also made which of the following British thrillers?

### Answer:

**A) The Third Man B) The Thirty Nine Steps C) Brighton Rock**

Email your answer with '**Vintage Classics**' as the subject heading – and don't forget to include your postal address!



### Fear the Walking Dead: The Complete First Season

The record-breaking spin-off from global TV phenomenon *The Walking Dead* lurches onto Blu-ray and DVD on December 7

and thanks to Entertainment One we've got five *Fear the Walking Dead: The Complete First Season* Blu-rays up for grabs.

### Question:

*Fear the Walking Dead* deals with an outbreak of which iconic screen monsters?

### Answer:

**A) Vampires B) Werewolves C) Zombies**

Email your answer with '**Fear the Walking Dead**' as the subject heading – and don't forget to include your postal address!



### Ghost Story

One of the most talked about horror films of the early 1980s, this bigscreen spooktacular makes its long-awaited Blu-ray and DVD debut in the UK on

December 7, courtesy of Second

Sight. To be in with the chance of winning one of five Blu-rays, simply answer this teaser...

### Question:

Which of the following Hollywood legends stars in *Ghost Story*?

### Answer:

**A) Fred Astaire B) Vincent Price C) Boris Karloff**

Email your answer with '**Ghost Story**' as the subject heading – and don't forget to include your postal address!

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## Hej! \*

Just thought you might be interested to know that our universal disc players, the BD32 MKII and its predecessor the BD32, are compatible with any Atmos enabled receiver and processor for playback of Atmos encoded discs.

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\* "Hi" in Swedish

Brendan's room  
uses a JVC projector  
and Seymour AV  
'scope-ratio screen



# The lone AV ranger

HCC reader **Brendan Burt** assembled this dedicated movie room without calling in the professionals. Now he hosts screenings and dishes out free sweets. Welcome to the B-Max!

## Welcome to the AV-Holic hall of fame! Introduce yourself...

Hi. I'm Brendan Burt, I'm 32 years old and I work as an Administration/Operations Officer in Newcastle, Australia.

## How long have you been into home cinema – and what was the first setup you had?

I guess I've been into the cinematic experience ever since I was a child – my earliest memory is of my dad taking me to see *The Adventures of Milo and Otis* in 1986.

The passion for owning a home cinema, however, began when I had my now wife Karina. Like many young couples our first date was a visit to the local cinema. My wife and I just love the movies in general, we have been together for 14 years and I have tried to keep every movie ticket since we started dating. So as soon as we bought our first house, the

idea of getting the cinema experience became high on my agenda. I ended up with an intimate little setup within an existing family room, put together mostly with second-hand items off auction sites.

## But now you have a dedicated room...

Yep. We had been in our first home for approximately eight years when we decided it was time to upgrade and build a new one. So from the very beginning every floor plan from every builder we looked at had to meet my one and only criteria – space for a cinema room without needing to deviate from the original design too much.

My wife had no issue as long as the house included a decent kitchen and walk-in wardrobe, I was free to go nuts. So when we finally both agreed on the perfect house to build, I was straight onto the builder: 'So this

formal dining/lounge room area – any chance I can get you guys to maybe extend it a metre in every direction? Oh, and completely wall it off for me.'

## How long did the project take?

All in all, about twelve months, chipping away at it on weekends and afternoons. We have now lived in the house for about a year and a half and haven't started the landscaping yet. Priorities, priorities...

## What was the hardest part of the build, and is there anything you would do differently in the future?

I don't think I can put my finger on anything that was the hardest. One thing I would warn other readers about is that I put the projector up when the room was only about 70 per cent finished. It was therefore damn hard to





There are eight seats, and space for bar stools and bean bags when more guests need to be squeezed in

stop watching movies in there and actually finish the project.

My room is completely DIY. Not one contractor was used, from wiring/sheeting/panels/screen/bar/carpet etc. This was my first build with the point of making it on a budget yet still bringing the movie theatre

**'I put the projector up before the room was finished. It was hard to stop watching movies and get the job done!'**

experience home. I've named it the B-Max, a take on the local theatre chain Event Cinemas V-Max.

The square panels were the most time-consuming, cutting strips of plywood down, glueing and nailing them to create the different depths, then wrapping and stapling fabric over each one.

#### **And those wall panels are there for acoustic treatment?**

Yes and no. I wanted to be able to use absorption and diffusion panels without seeing them, so the square panels were a perfect way to hide them. I have absorption

at the first and second reflection points, and at the rear of the wall either side of the bar.

#### **So what kit are you using at present?**

My projector is a JVC DLA-X500 and the screen, from Seymour AV, is a 4m CinemaScope 98-XD with acoustically transparent material. For content I have an Oppo Blu-ray player, Popcorn Hour media centre and a PlayStation 4.

The speaker array is 9.2-channel – front height, front LCR, surrounds and rears. I'm using a combination of JBL and BIC America Acoustech speakers/subs, and an Onkyo TX-NR646 AV receiver. For Atmos Blu-rays, I unfortunately have to choose on the receiver between heights or surrounds. So I am looking to upgrade next year, at this stage to the TX-NR1030.

There are eight recliners, all fitted with Aura Bass Shakers.

All the equipment is controlled by a wireless Z-Wave home automation system. The lights are programmed to dim when a movie starts, I have electric curtains to hide the screen/change aspect ratio and a custom home theatre intro that plays before the main feature – all driven via an Apple iPad.

#### **What do you love the most about your room?**

The escapism of it. Once you close those



The rear of the room has a raised area for the second seating row. All Brendan's chairs were eventually fitted with Aura Bass Shakers



As the cinema takes shape, speakers are in situ and the time-consuming job of making and installing the wall panels is underway



Posters of Brendan's favourite sci-fi flicks flank the room's double doors (left) which themselves are lined with bespoke panels to limit sound leakage to the rest of the house

doors, you shut the whole world out and start to forget what time of day it is.

### How do you rate the system's performance?

The huge attraction for me of the JVC DLA-X500 projector was the rated contrast, which really is amazing. The blacks are black without really compromising bright objects in the scenes. The opening minutes of *Thor* in Puente Antiguo, New Mexico is a great little demo scene to show the contrast and shadow depth. And *Gravity* really shines – sitting there, with the lights out, you can't see your hand waving in front of your face and then stars fill the screen. Since the room has 100 per cent light control I feel no need to use the dynamic iris system.

I struggle a little with 3D. I seem very susceptible to motion judder. Guests don't seem to experience it, but it becomes quite evident in bright scenes for me. The 3D depth is amazing, though.

I'm definitely impressed by the Onkyo's performance for the price point. My goal was to get a low/mid-range receiver under \$1,000. I was able to pick one up off eBay unused and

unwanted for about \$800. It's fun to throw in some older movies like *Star Trek* and hear sounds you have not heard before. I haven't had a chance to hear a system with dedicated channel amps in a home environment to compare against, but my theatre was built with a budget in mind.

The Oppo does offer excellent video quality, but there are cheaper options out there. I wish I had gone for a cheaper player and used the extra money for my receiver.

The speaker combo of JBL fronts and Acoustech PL rears/surrounds is quite solid but I am a true believer in you get what you pay for. So next year I'm really looking forward to building some matching horn-loaded LCR speakers, like the The Elusive 1099 or Fusion-15 Sentinels from the team over at [www.diysoundgroup.com](http://www.diysoundgroup.com). I also have a craving to build a pair of subs, using Dayton 15in drivers to replace my current 12in models.

### And what's your favourite bit of gear?

I think the Z-Wave automation stuff. It was really easy to install and it's great to be able to control everything with the iPad. The whole setup cost about \$600. Each device remote

(receiver/projector/Oppo) has been individually duplicated and scenes (macros) are a cinch to create. When we have guests over I love to play advertisements, trailers and my movie intro so at the touch of a button on the tablet, the Popcorn starts playing the files which are pre-organised within a folder on my Synology NAS and the lights dim to about 25 per cent brightness. Once the last trailer has finished, I press the movie button macro which switches the amp over to the Oppo, starts playback on the disc, and the lights slowly dim to off.

Oh, and the commercial popcorn machine is another favourite! It's all about the experience for the guests – I want them to experience the same as they would at the local cinema, with the added bonus of free lollies/ chocolates and alcohol.

### So how much have you spent on the room?

I haven't kept a running total but around \$16,000-\$18,000. It's quite funny – to put it into perspective we could have gone to the local cinema around 800 times for the same amount!

### What do friends and family think of the cinema room?

Shocked I think. It was great when telling your friends you're building a home cinema, and you can see from the looks on their face they don't quite grasp what you mean by it. They think lounge room with big flatscreen and recliners. When we finally had them over for our opening night we watched *Interstellar* and everyone was in awe saying we really captured the cinema experience.

### What discs do you use to show off the system?

I use *Avatar* for 3D. The race to the bridge in the Koenigsegg Agera cars in *Need for Speed* is mindblowingly loud. I also like to





demo *Avengers: Assemble* and *X-Men: Days of Future Past*.

### And what are your favourite films?

I'm a huge sci-fi lover, so *Predator*, *Aliens*, *Prometheus*, *Interstellar*, *Inception*... just to name a few.

### How often are you using the room, and is it just for movies or do you watch sports/TV/play games in there too?

Generally once a week. Movies are the main feature. The room is equipped with a PlayStation 4, and lately I have been playing a bit of *Madden NFL* which is just awesome, but first-person games such *Battlefield* and *Call of Duty* I can't stomach for more than about 20 minutes as the size of the screen and fast movements make me feel sick.

My wife and I are big NRL [Australian National Rugby League] fans so big games like the State of Origin series and Grand Final are always showing. The most we have crammed into the room is thirteen, with four stools at the back around the bar and a couple beanbags down the front. We also love our TV shows – *Game of Thrones*, *Arrow*, *The Flash* – so on occasion they get a showing too.

### Lastly, are you excited by 4K?

Yes and no. 'Yes' because I can't wait to see a native 4K projector running a 4K Blu-ray in my own cinema, but 'no' because it is really going to hurt my wallet! ■



Bespoke mugs, sweets, menus (and monkeys!)... A lot of effort has gone into making guests feel at home



## SHARE YOUR SYSTEM IN THE MAG!

**IF YOU WANT TO BE THE NEXT 'AV-HOLIC' IN HCC,** you'll need to send us some hi-res images of your cinema room. The better-quality image we get, the better your room will look. So follow these simple steps:

1. Go big. Set your camera to take images at the largest possible size, and at the highest resolution. Don't worry about cropping or resizing – we will make them print-ready.
2. Get in focus. Make sure your photos are as sharp and clear as possible. If you have one, use a tripod, or place your camera on a flat, steady surface and take pictures on a delay. The sharper they are, the bigger we can print them.
3. Let some light in. While we tend to watch movies in the dark, our

cinema systems look their best when they are lit. If you can shoot with natural daylight, do so. If your room doesn't get a lot of light (a garage conversion, for instance) then switch on whatever lights are fitted. Avoid using flash wherever possible.

4. Be thorough. Send photos of as much of the room as possible. Images of both the front and back of the room, the kit rack, speakers, seating, disc shelf, movie poster art... The more the merrier.

5. Don't be shy. We'd love a picture of yourself – unless you want to remain anonymous...

6. Show us more. Got pictures of your room before it was a cinema? Or snaps of work being done? We love to see these, too.

Email your selection of images to [letters@homecinemachoice.com](mailto:letters@homecinemachoice.com) with the subject heading 'AV-Holic'. Provide us with some information about your setup and we'll then be back in touch.

## ...And blag an AudioQuest Pearl HDMI cable!

The kind people at cable king AudioQuest are giving away a two-metre Pearl HDMI cable to our AV-Holic each month. The Pearl, which retails for £34, uses long-grain copper conductors and a foamed polyethylene insulation for a robust construction. All AudioQuest HDMI cables up to 10 metres meet or exceed the 10.2Gbps maximum data rate for HDMI and are approved High Speed with Ethernet cables.







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# PLAYBACK

→ **SOFTWARE HIGHLIGHTS** **INSIDE OUT** Pixar rediscovers its magic with this adventure inside a young girl's mind **TERMINATOR GENISYS** Arnie's T-800 is back and this time he's been given an Atmos upgrade **MINIONS** Gru's sidekicks break out on Blu-ray **HANNIBAL** It would be a crime not to watch this series in hi-def **BRUCE LEE** Martial arts classics take a few knocks on BD **AND MUCH MORE!**

## Silence is golden

The Charlie Chaplin Collection → Curzon Artificial Eye  
Region B BD

This bumper 11-disc boxset brings five of the comedy legend's films to Blu-ray for the very first time. Turn to p104 to see if the wait has been worth it...



### HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆



# Pixar's latest is a heady affair

This dazzling and inventive cartoon is the year's best feel-bad-film. And that's no bad thing

## → INSIDE OUT

Describing the plot of Pixar's 15th animated film is a tricky thing. At its most basic *Inside Out* follows 11-year-old Riley (voiced by Kaitlyn Dias) as she comes to terms with moving to a new city.

However, this being a Pixar flick there's an added wrinkle, with the story playing out simultaneously in two worlds. So, as well as following Riley in the 'real' world, the film goes inside her head to deal with the personifications of her five key emotions – Joy (Amy Poehler), Sadness (Phyllis Smith), Anger (Lewis Black), Disgust (Mindy Kaling) and Fear (Bill Hader) – which control her moods and feelings.

If this all sounds a bit like the old *Nurmskulls* comic strip, then rest assured that Pixar adds plenty of its trademark magic to ensure that the concept feels fresh and unique. But most impressive of all is the way the studio explores the idea that sadness is just as important as joy when it comes to our formative memories and experiences.

*Inside Out* manages to do this while taking viewers on a fantastically fun journey into the imagination (with a potted history of abstract art thrown in along the way). It goes to show just how creative, daring and sophisticated the studio's storytelling has become, and will restore the faith of those who feared it had lost its way with *Monsters University* and myriad *Cars* sequels and spin-offs.

**Picture:** *Inside Out* features the sort of immaculate 1080p transfer we've come to expect from Pixar. The 1.78:1 image is bright, vibrant, razor-sharp and



Thankfully, the theatrical short *Lava* does make it onto the 'standard' UK BD



## HCC VERDICT

### Inside Out

→ Walt Disney

→ All-region BD → £25 approx

**WE SAY:** A superb Blu-ray spoilt only by the decision to limit availability of the full range of bonus features

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

packed with detail (we caught ourselves simply staring at the meticulously realised textures in Joy and Sadness's hair on quite a few occasions). Black levels and shadow detail are also flawless, which comes in handy with sequences such as the visit to the Memory Dump in Chapter 22.

**Audio:** While the Blu-ray defaults to a DTS-HD High Resolution 5.1 track, a visit to the Set-Up menu reveals the presence of a DTS-HD Master Audio 7.1 mix. This is an absolute delight, making subtle and nuanced use of the surround array to bring life to locations. And pay close attention during Chapter 12's 'Abstract Thought' sequence for a particularly creative bit of sound design.

**Extras:** This UK release of *Inside Out* is accompanied by a commentary from director Pete Docter and co-director Ronnie Del Carmen (with a brief appearance by director of photography Patrick Lin); two behind-the-scenes featurettes (*Paths to Pixar: The Women of Inside Out* and *Mixed Emotions*); and two animated shorts – *Lava* and *Riley's First Date* (again, the audio on these defaults to DTS-HD HR 5.1 but can be switched to DTS-HD MA 7.1).

However, in a move sure to anger fans, Disney UK has opted to make the bonus disc that is included with the US Blu-ray (housing additional behind-the-scenes featurettes, deleted scenes and trailers) available exclusively on these shores as part of Zavvi.com's limited edition steelbook. As this version sold out on pre-orders, UK fans may want to import the US release to get the full array of extra features.



## Slow West

Lionsgate → Region B BD  
£20 approx



Living up to its title, writer-director John Maclean's debut feature is a slow-burning addition to the

Western genre, albeit one that quickly wins you over with its offbeat (almost Coen-esque) sensibilities and confident storytelling. It's a particularly stylish film too, an aspect that gains plenty from the exceptional 1.66:1-framed 1080p encode presented on Lionsgate's Blu-ray release. Supporting the pristine transfer is a lyrical DTS-HD MA 5.1 mix that captures the joy of Jed (*The Babadook*) Kurzel's gentle score. Extras include interviews, deleted scenes, a *Making of...* and two short films.



## Song of the Sea

StudioCanal → Region B BD  
£23 approx



While this charming Irish animation owes more than a little to Hiya Miyazaki in the way in which it engages with

childhood and local mythology, *Song of the Sea*'s unique hand-drawn style makes it feel like a breath of fresh air in an ocean of 3D CG cartoons. Unsurprisingly, this hi-def platter's 1.85:1 Full HD transfer does wonders for the film's gorgeous art, while the atmospheric DTS-HD MA 5.1 mix is available in both English and Gaelic versions. Director Tom Moore provides a commentary for not just the film itself, but also a trio of animation tests and some behind-the-scenes footage.



## Gravity: Special Edition

Warner Bros. → All-region BD  
£15 approx



Six months after it hit the US, AV-hedz in the UK can grab a copy of *Gravity* on Blu-ray with a Dolby Atmos mix.

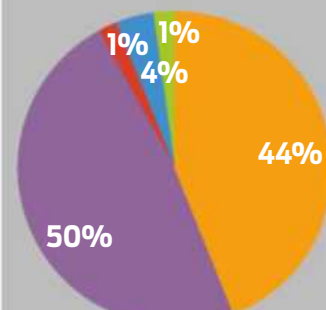
While the new 3D audio track is an absolute belter, Warner Bros. has opted to leave out the stereoscopic version of the film – so you can either experience *Gravity* on Blu-ray with 3D visuals or with 3D sound, but not both at the same time. On top of the original extras, this two-disc Special Ed. packs in a new 'Silent Space' Dolby Digital 5.1 soundtrack that removes the score; a 42 min history of space films; and an 11 min piece on NASA astronauts.



## WE ASKED...

Which is the best of the Terminator films?

■ The Terminator ■ Terminator 2  
■ Terminator: Rise of the Machines  
■ Terminator Salvation  
■ Terminator Genisys



Results from [www.homecinemachoice.com](http://www.homecinemachoice.com)  
Go online for more polling action



# Cartoon sidekicks take centre stage

This slapstick spin-off should go down a treat with fans of the little yellow weirdos

## → MINIONS

Loved by children everywhere, Gru's little yellow sidekicks from the *Despicable Me* cartoons have graduated to their own feature film.

Set during the swinging '60s, the film features an intrepid trio of Minions setting off to find a new evil master to serve in the days before Gru. They settle on up-and-coming female supervillain Scarlet Overkill (voiced by Sandra Bullock) who plans to steal the British crown. It'll come as no surprise to learn that things don't go exactly according to plan.

An improvement on 2013's *Despicable Me 2*, this spin-off is rather uneven (and 91 minutes of non-stop gibberish-talk will no doubt be too much for some), but at its best comes close to capturing the anarchic energy of the best *Looney Tunes* cartoons. Not a Pixar-style masterpiece then, but far better than it has any real right (or need) to be.

**Picture:** As with the two *Despicable Me* movies, *Minions* lands on Blu-ray with reference-quality video. The AVC-encoded 1.85:1 1080p imagery offers a stunning masterclass in colour reproduction; the palette being bold and richly saturated at all times, supported by high contrast that helps it all pop from the screen. Sharpness and clarity are also first-rate, with the meticulous detailing lending the image a three-dimensional quality.

**Audio:** The film's Dolby Atmos mix is expansive, manic and enjoyable, although it makes moderate use of the additional height in the soundfield. There are odd isolated effects that play across the upper speakers (the rocket accidentally fired at a police car in Chapter 4), for the most part the top channel is



The kings of cartoon mayhem

focused upon atmospheric effects: boosting the echoey applause during Scarlet Overkill's convention appearance (Chapter 6) and giving the score greater scale during the film's action-packed finale (Chapter 17).

**Extras:** There's a wealth of behind-the-scenes goodies (including scene breakdowns, art galleries, interviews, storyboards, animatics, villain profiles and a set-top game) on the Blu-ray – providing you can actually be bothered to pick your way through the over-elaborate menus utilised in the *Around the World Interactive Map* and *Behind the Goggles: The Illumination Story of the Minions* sections of the disc.

Also included are two typically fun Minions animated shorts (*Cro Minion* and *Competition*), plus a short adventure for one of the film's supporting characters (*Binky Nelson Unpacified*). Finishing things off is a bonkers sing-along video of the Minions performing *Jingle Bells*.



## HCC VERDICT

### Minions

→ Universal Pictures

→ All-region BD → £25 approx

**WE SAY:** Give this disc a spin for a fun mix of goofy gags, anarchic action and handsome hi-def visuals

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Tails you win, heads you lose...



# I'll be back? Let's hope not

Needlessly convoluted reboot should terminate any chance of this franchise carrying on

## → **TERMINATOR GENISYS**

The Future War is over. Skynet has been defeated. All that remains is for resistance leader John Connor (Jason Clarke) to send Kyle Reese (Jai Courtney) back to 1984 to protect his unsuspecting mother Sarah (Emilia Clarke) from the T-800 cyborg assassin (Arnold Schwarzenegger) that Skynet sent through time to kill her. But when Kyle arrives in 1984, not only is Sarah waiting for him, but she also has her own tame T-800...

For all of its popularity, the *Terminator* franchise hasn't had the smoothest of rides on the bigscreen. While *The Terminator* and *T2: Judgement Day* have cemented their place in cinema history (and went on to become favourites with AV-hedz around the globe), *Terminator 3: Rise of the Machines* is little more than a turgid retread of the first two films (with worse gags and a lady Terminator) and *Terminator Salvation* has more in common with Michael Bay's *Transformers* films than it does

James Cameron's modern classics. Indeed, post-*T2*, the only genuinely innovative addition to the franchise was TV's *The Sarah Connor Chronicles*



Schwarzenegger's CG double is one of the high points of the film's visual effects

— and that was terminated just as it was starting to get really good.

Sadly, *Terminator Genisys* does nothing to set things right; instead it's the absolute nadir of the franchise to date.

To be fair, the first 15 minutes or so demonstrate some promise. Showing the end of the Future War is something that fans have wanted to see ever since Cameron dropped the scripted sequence from the start of *T2*. And *Terminator Genisys* makes a pretty good fist of giving the sequence the scale it needs as our heroes blast through armies of Endoskeletons, Hunter Killers and Spider Tanks. But then the alternate timeline kicks in and (after the novelty of watching old man Arnie taking on his — admittedly pretty impressive — 80s-era CG double) things go completely off the rails.

For a series that deals explicitly with time travel, the *Terminator* films have never really been *about* time travel. Until now, that is. What was once a fairly straightforward idea has been turned into a complicated mess of alternate timelines and paradoxes (at least when Paramount pulled the same trick with 2009's *Star Trek* reboot it was done as a way of ditching all of the established fan lore that was off-putting to non-Trekkie audiences).

Perhaps the finest example of the needless over-complication that runs through *Terminator Genisys* is its handling of Skynet. What was once the elegant notion of an A.I. defence network gone rogue has been transformed into a poorly-defined cloud-based OS of some kind. Why mess with what worked

He may be getting older, but Arnie's T-800 (left) isn't obsolete...





## DEMO SCREEN...

## Terminator Genisys

Time code: 086.00 – 089.04



**Overhead audio:** As Kyle, Sarah and 'Pops' (the T-800) flee in a school bus, John drops down onto the roof, his footsteps seeming to come from above you thanks to the disc's Atmos mix.



**Car-crash cinema:** John disposes of 'Pops' by flinging him out of the bus into the path of an oncoming cop car. The hefty bass impact that follows sells the fact that these are two machines hitting one another.



**Out of control:** Having lost its brakes, the school bus speeds across the Golden Gate Bridge, crashing into cars as it goes and surrounding the viewer with precisely-rendered positional effects.



**Airborne thrills:** John's final bit of vehicular sabotage sends the bus somersaulting through the air. Not exactly what you'd call believable, but who cares when it looks and sounds this good?

perfectly in the first place if the alternative isn't an improvement and nobody bothers to explain why the change matters?

And the problems don't end there. While Emilia Clarke is no Linda Hamilton, at least she doesn't suck the life out of every scene she's in like walking charisma-vacuum Jai Courtney (who is so wrong on every single level for the part of Kyle Reese that it's not even funny). Of the film's good guys, only Arnie emerges from this mess unscathed.

Then there's John Connor's transformation into the film's big bad. While it was already an inane use of the character, the surprise reveal may have livened the middle of the film up a little, if only Paramount's marketing department hadn't given the twist away in the trailers, posters and even on the Blu-ray sleeve. D'oh!

**Picture:** *Terminator Genisys* delivers a flawless 2.40:1 Full HD BD encode. With so much of the film taking place at night, colours are often muted, but brighter daytime sequences such as Chapter 13's bus chase reveals plenty of dazzling primaries. Black levels are deep and accurate at all times.

The image's impeccable sharpness can draw attention to some of the less successful CG effects (Chapter 14's helicopter chase being the worst offender), but elsewhere draws you into the movie's mechanised world with sharp edges and metallic details.



Any chance of a sequel has likely been shot down

**Audio:** From the moment John Connor abseils down into shot early in Chapter 1, with his weapon fire panning down the front of the vertically expanded soundstage, it's clear that this Dolby Atmos mix is going to be a lot of fun. Indeed, the sound designers rarely miss a chance to use the larger scope of the soundstage for added ambience (the interior of the room containing the time machine in Chapter 2 is a prime example) or more object-based fun (see Demo Scene above). The core Dolby TrueHD 7.1 mix is no slouch either, packing just as much power and raw aggression in its use of the surrounds and rears as its bigger brother.

**Extras:** Bonus bits are limited to three of behind-the-scenes featurettes focusing on the cast (16 mins), shooting in New Orleans and San Francisco (25 mins) and the visual effects (15 mins). An apology for the film itself is the most obvious omission...



## HCC VERDICT

## Terminator Genisys

→ Paramount  
→ All-region BD → £25 approx  
**WE SAY:** An incomprehensible and idiotic reboot hiding behind some impressive AV credentials

Movie ★★☆☆☆☆

Picture ★★☆☆☆☆

Audio ★★☆☆☆☆

Extras ★★☆☆☆☆

Overall ★★☆☆☆☆

Skynet takes parking violations extremely seriously...



## ARCADE ACTION

Bigscreen home entertainment isn't just about movies anymore. Check out these two videogames vying for time on your home cinema system...

### Transformers Devastation

Activision → Xbox One/Xbox 360/PS4/PS3 → £40 approx



Forget Michael Bay's overblown live-action movies, this new *Transformers* game harks back to the classic 1980s cartoon series instead. The result is one of the most visually-arresting brawlers ever made and a welcome blast of nostalgia for franchise fans.



Created by Japanese developer Platinum Games, *Transformers: Devastation* takes many of its gameplay cues from the studio's earlier cult hit *Bayonetta*. If you haven't ever sampled the delights of that title, trust us when we say that this is a very good thing.

Combat is complex yet intuitive, with each of the five playable Autobots (Optimus Prime, Bumblebee, Grimlock, Sideswipe and Wheeljack) boasting its own distinctive array of physics-defying melee moves and eye-scorching ranged weaponry. But this being a *Transformers* game, it also throws in elements from racing games as you make use of the Autobot's (very accomplished) vehicular modes.

And *Transformers: Devastation* looks and sounds absolutely incredible. Not only do the original voice cast from the animated series reprise their roles, Platinum Games has crafted a cel-shaded style that makes the entire thing feel like you're playing a fully interactive 3D version of the 'toon. The best *Transformers* game ever made.



### FIFA 16

EA Sports → Xbox One/Xbox 360/PS4/PS3/PC → £50 approx



Back in May, Chelsea won the Barclays Premier League after dominating the 2014-2015 season. However, skip forward six months and the team now finds itself sitting in the bottom half of the table. Curiously, a similar change of fortune has also taken place in the world of virtual football...



For the best part of a decade now, EA Sports' *FIFA* franchise has represented the pinnacle of football games, with Konami's rival title *Pro Evolution Soccer* struggling to keep pace. But this time out *FIFA* has been knocked into second place. That's not to say that

*FIFA 16* is a hopeless game; far from it. The decision to add women's national teams is both welcome and long-overdue, while the updates to *FIFA Ultimate Team* have only served to make the card-collecting, team-building online mode even more addictive (and possibly wallet-draining given the optional micro-transactions). However, when it comes to *FIFA 16*'s core gameplay, the changes are minimal – despite a new fast pass feature, play actually feels slower (particularly in the midfield) and player stats have rarely felt less important, with everybody seeming to have the same pace on the pitch. All of which leaves *FIFA 16* lagging behind the vastly improved *PES 2016* in this year's soccer game shootout.



### Poltergeist: Extended Edition

20th Century Fox → All-region BD  
£25 approx



This remake of the Spielbergian '80s spook-fest isn't lacking for bombast. But while this results in a dynamic and impactful DTS-HD MA 7.1 mix, it also robs the movie of any subtlety

or nuance, ripping out the human heart of the original story in favour of filling the screen with cheap scares and flashy visual effects (the latter at least providing some striking 2.40:1 Full HD visuals). In addition to two cuts of the film, the BD serves up an alternate ending, two trailers and a stills gallery.



### Penny Dreadful: Complete Second Season

Paramount → Region B BD  
£30 approx



If the first season of John Logan's horrifying TV drama showed signs of greatness, this second 10-episode run saw *Penny Dreadful* shift into high gear as it set about unleashing

a cavalcade of small screen scares. Elsewhere it's business as usual with this four-disc Blu-ray release delivering a similar AV experience as its predecessor. The AVC 1.78:1 1080p imagery looks tonally muted but is also pin-sharp, while the Dolby TrueHD 5.1 mixes are deliciously eerie. Once again extras are limited to short behind-the-scenes vignettes.



### Gotham: The Complete First Season

Warner Bros. → All-region BD  
£40 approx



This pre-Batman foray into the crime-ridden world of Gotham City had a hugely uneven first year, although the missteps were compensated for by its superb treatment of

The Penguin; Robin Lord Taylor's up-and-coming crime lord steals the show out from under Ben McKenzie's Jim Gordon. This four-disc Blu-ray boxset makes the show even more appealing with its magnificent 1.78:1 Full HD transfers, immersive DTS-HD MA 5.1 audio and interesting extras.





# Blu-ray battle royal

Four of the martial arts legend's movies fight it out in our hi-def dojo – which will come out on top?

## → BRUCE LEE MOVIES

Unhappy with the supporting roles he was offered after a successful gig playing Kato on *The Green Hornet* TV series, Bruce Lee returned to Hong Kong in order to launch himself as a true film star.

First out of the gate was 1971's *The Big Boss*, which starred Lee as a worker at an ice factory who discovers it is being used as a front for drug smuggling. Although a little slow to get going and pretty rough around the edges, this proves a decent intro to Lee's martial arts prowess when the narrative finally lets him cut loose.

Arriving the following year, *Fist of Fury* cast Lee as a martial arts student out for revenge on the foreign aggressors responsible for the death of his master. A far more accomplished affair than its predecessor and packed with brutal fight sequences, *Fist of Fury* is regarded as Lee's best film by many fans.

1972 also saw the release of the even more lavish *The Way of the Dragon*. A precursor to the sort of international action-comedies that Jackie Chan would make his own, it's a lot of fun and climaxes with an unforgettable showdown between Lee and Chuck Norris.

Finally, we have *Game of Death*, which Lee was working on at the time of his demise. Released in 1978, the finished movie is a complete mess, editing original footage into a completely different plot. Still, the surviving footage of Lee in action (which makes up the final act) is superb and there's pleasure to be had spotting the unconvincing stand-ins for the actor (including a photo stuck to a mirror at one point).

**Picture:** Despite inconsistencies in stability and density, the low-budget *The Big Boss* is easily the best-looking of these four Blu-ray releases. *Fist of Fury* and *The Way of the Dragon* also offer significant upgrades from the old DVD releases and look similar to each other – with the exception of the first 10 minutes or so of the latter which lacks any real definition, rendering everything as blobs of colour with no detail whatsoever.

Most problematic of all is *Game of Death*, which appears to be an upscale rather than a true HD master.

**Audio:** *The Big Boss*, *Fist of Fury* and *The Way of the Dragon* offer up a multitude of audio options including lossy Mandarin, Cantonese and English mono tracks alongside (horrible) DTS-HD MA 5.1 remixes of those same tracks. Meanwhile *Game of Death* plumps for lossy mono, stereo and 5.1 English language tracks.

**Extras:** All four BDs are jam-packed with extras (mainly taken from the old Hong Kong Legends DVDs) including commentaries, interviews, deleted scenes, photo galleries and trailers.



### HCC VERDICT

#### The Big Boss

→ Mediocre → Region B BD  
→ £25 approx

**WE SAY:** While it won't K.O. you with its AV prowess, this BD will still please Lee's legions of fans

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



### HCC VERDICT

#### Fist of Fury

→ Mediocre → Region B BD  
→ £25 approx

**WE SAY:** A solid hi-def showcase for Lee's best film, but not exactly dazzling

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



### HCC VERDICT

#### The Way of the Dragon

→ Mediocre → Region B BD  
→ £25 approx

**WE SAY:** A perfectly acceptable upgrade from the old DVD – but nothing more than that

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



### HCC VERDICT

#### Game of Death

→ Mediocre → Region B BD  
→ £25 approx

**WE SAY:** Great extras, but the film is a dud and the upscaled imagery is really quite abominable

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



# Time for some just desserts

Everybody is out for revenge in the final season of this tasty crime series

## → HANNIBAL: THE COMPLETE SEASON THREE

Anybody expecting swift resolutions to the questions left hanging by the bloody finale of *Hannibal*'s second season haven't reckoned with showrunner Bryan Fuller's decision to completely reboot the show. Where Hannibal (Mads Mikkelsen) was once the arch manipulator who stayed in the shadows, this final run of 13 episodes finds him on the run from the FBI and other enemies.

Kicking off with a trio of wilfully esoteric episodes that will test most viewers with their reliance on nonlinear narrative techniques, Season Three eventually settles down to give its own take on two

of Thomas Harris' books – *Hannibal* and *Red Dragon*.

The former favours the sort of grand guignol humour and body horror that served the show so well in its first two seasons (and proves to be more satisfying in dramatic terms than Ridley Scott's film adaptation).

The second storyline, meanwhile, takes the series into even darker territory.

All of which adds up to the most audacious, intelligent and challenging TV drama in recent memory. And while it's a terrible shame that the show has been cancelled, fans can take some comfort from the fact that the axe



fell early enough for Fuller to give *Hannibal* the perfect send-off.

**Picture:** A heavily-stylised aesthetic once again marks *Hannibal* out as one of the most distinctive looking TV shows on Blu-ray. Spread across four hi-def platters, the 1.78:1-framed 1080p encodes prove adept at recreating the aggressively graded colour palette. Excellent sharpness and clarity also reveal plenty of detail and textures in the meticulous set and costume design.

**Audio:** Brian Reitzell's nightmarish compositions continue to be the main driving force behind the show's impressive DTS-HD MA 5.1 soundtracks. Part-way between score and unsettling ambient sound, they mirror the visuals well and dominate the entire soundscape with power and authority.

**Extras:** Nothing. Certainly not the commentaries, featurettes, webisodes, gag reel or deleted scenes announced for Lionsgate's US release.



### HCC VERDICT

**Hannibal: The Complete Season Three**

→ StudioCanal → Region B BD  
→ £35 approx

**WE SAY:** An otherwise great release let down by an absence of extras

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★☆☆☆☆

**Overall** ★★★★★

## Rectify: Series One

ITV Studios → R2 DVD  
£25 approx



While the glacial pacing may put off some, those who like their TV drama more measured and thought-provoking will

find plenty to savour in this beautifully written series about a former convict who has spent the last 19 years behind bars for the rape and murder of his girlfriend, only to be freed due to new DNA evidence. It's a shame the show hasn't been given the chance to shine on Blu-ray (and the same was also true of the 2013 US release), yet this DVD outing splits its six episodes across two discs, which helps ensure a healthy bitrate for the attractive anamorphic 1.78:1 transfers.



## The Avengers: Complete Series 6

StudioCanal → Region B BD  
£75 approx



This final 33-episode run of the '60s British spy-fi series pales a little in comparison to its predecessors due to changes in the production team and the inconsistent writing of Emma Peel's replacement Tara King. This nine-disc hi-def outing is pleasing, however. The 1.33:1-framed Full HD transfers look as bold and vibrant as ever, while the LPCM mono audio has cleaned up very nicely. There's also no shortage of extras, with the set offering up chat-tracks on six episodes, filmed intros, screen test footage and a whole lot more.



## American Horror Story: Freak Show

20th Century Fox → All-region BD  
£40 approx



Having already given us a haunted house, an insane asylum and a witches' coven, this fourth season goes all Tod Browning with its focus on a troupe of 'human oddities' who set up near the small town of Jupiter just as a series of murders rock the town. Even more visually inventive than previous seasons... *Freak Show* hits Blu-ray with impressive AVC 1.78:1 1080p encodes, while the DTS-HD MA 5.1 mix is just as adept at building a creepy atmosphere as it is handling the many musical numbers. Extras take the form of six featurettes.



## Doctor Who: The Underwater Menace

BBC Worldwide → R2 DVD  
£20 approx



Released from the BBC vaults some 18 months after the classic *Doctor Who* DVD range ended, this disc features the two surviving episodes of the four-part story alongside photo reconstructions of the missing instalments. Sadly, while two brief clips from the missing episodes also exist, they are included as a separate extra here rather than being integrated into the main presentation. Other goodies include a wonderful 28-minute retrospective doc and optional commentaries for the four episodes (including an archival interview with Patrick Troughton on episode four).







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When Margaret asked for a lift home, this wasn't quite what she meant...



# From the Tramp to a King

New Blu-ray boxset charts the extraordinary feature film career of a Hollywood legend

## → THE CHARLIE CHAPLIN COLLECTION

One of the most important figures in the history of the film industry, Charles Spencer 'Charlie' Chaplin enjoyed a career that spanned some 75 years. In the process he helped define the language of cinema, pioneered technological advances as a filmmaker and co-founded United Artists with D.W. Griffith, Mary Pickford and Douglas Fairbanks to wrest control of their work back from the major studios.

While six of Chaplin's best-known feature films (*The Kid*, *The Gold Rush*, *The Circus*, *City Lights*, *Modern Times* and *The Great Dictator*) were previously released on Blu-ray in the UK by Park Circus back in 2010, Curzon Artificial Eye's new boxset sees them joined by five titles making their hi-def debut (*A Woman of Paris*, *Monsieur Verdoux*, *Limelight*, *A King in New York* and *The Chaplin Revue*). Together, it adds up to one of the most impressive and irresistibly amusing bodies of work imaginable.

**Picture:** The six previously-released titles look pretty much identical to Park Circus' Full HD presentations and still hold up well today – even if they aren't always the best version available (the most obvious example being the newer 4K restoration used as the basis for Criterion's 2013 release of *City Lights*).

Of more interest to Chaplin fans, however, will be the condition of the five titles that are new to Blu-ray. Given its age, it's not surprising that the 1080p presentation of 1923's *A Woman of Paris* is affected by plenty of scratches and other minor print damage.



### HCC VERDICT

#### The Charlie Chaplin Collection

→ Curzon Artificial Eye

→ Region B BD → £80 approx

**WE SAY:** Not without some flaws, but still an invaluable Blu-ray boxset for fans of the bigscreen comedy legend

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

However, the encode also reveals plenty of fine detail thanks to improved clarity and contrast levels.

*Monsieur Verdoux* (1947) doesn't fare quite so well, with the application of digital filtering resulting in a drop-off in fine detail.

Thankfully, *Limelight* (1952) sees a return to the sort of quality we've come to expect from the collection, despite boosted brightness levels. The same minor quibble can also be levelled against *A King in New York* (1957), although the greyscale palette looks slightly more balanced here.

That 1959's *The Chaplin Revue* looks pretty rough compared to other films of that vintage clearly stems from the fact that it's a compilation of three silent shorts (1918's *A Dog's Life* and *Shoulder Arms*, plus 1923's *The Pilgrim*). Not only is print damage rife due to the condition of the source material used to make the film, there's also a curious white line that appears at the right of the 1.66:1 frame during the credits on the second and third films.

**Audio:** While all of the films feature restored LPCM 2.0 dual-mono soundtracks, *The Gold Rush*, *Limelight* and *The Circus* also sport DTS-HD MA 5.1 mixes. But apart from being louder than the mono tracks and giving the scores a slightly more expansive feel, these offer little over the films' original audio.

**Extras:** The discs boast plenty of extras recycled from the 2003 MK2/Warner Bros. DVDs. These include video intros and *Chaplin Today...* featurettes for each film, trailers and several silent shorts (upgraded to HD). The only notable omission is the original 1925 silent version of *The Gold Rush*.



## The Ladykillers: 60th Anniversary Edition

StudioCanal → Region B BD  
£25 approx



Perhaps the best (and easily the best known) of the Ealing Comedies, this magnificently macabre laughfest

finds a criminal gang meeting their match in the form of a little old lady. This third UK Blu-ray release of the film takes the (perfectly good) 1.37:1 Full HD restoration and extras from the 2010 'StudioCanal Collection' platter and adds a featurette looking at the film's London locations (nine minutes), plus audio interviews with assistant director Tom Pevsner (92 minutes) and unit production manager David Peers (93 minutes).



## On the Beach

Signal One → Region B BD  
£15 approx



It may not have been the first doomsday movie, but director Stanley Kramer's bleak 1959 post-apocalyptic melodrama was among the first to treat the subject matter in a suitably solemn manner. While this Blu-ray's 1.66:1-framed 1080p encode shows some print damage, for the most part it's a commendable effort that does an excellent job of recreating the film's impressive black-and-white photography. Informative bonus features include a detailed commentary, archival 8mm behind-the-scenes footage and a new interview with actress Donna Anderson.



## The Little Girl Who Lives Down the Lane

Signal One → Region B BD  
£15 approx



Blimey, Jodie Foster had a busy 1976. Not only did she make it big with *Taxi Driver*, *Bugsy Malone* and *Freaky Friday*, she also found time to star in this unsettling Canadian thriller about a secretive 13-year-old girl who recently moved to a small town in Maine with her (mysteriously absent) father. Ripe for rediscovery, *The Little Girl...* arrives on Blu-ray with a cleanly-rendered 1.85:1 Full HD transfer that is hampered only by the film's rather bland 'TV movie' aesthetic. Also included on the disc is a fun chat track by two cult film aficionados.



## Thieves' Highway

Arrow Academy → Region B BD & R2 DVD → £16 approx



Jules Dassin's savage 1949 noir stars Richard Conte as a war veteran who goes looking for revenge on the crooked fruit vendor who caused his father to be crippled. Part revenge drama, part brutal indictment of corruption in the California fruit markets (with a dash of sleazy eroticism thrown in for good measure), it's baffling that *Thieves' Highway* isn't held in the same regard as Dassin's later *Rififi*. Still, this superior Blu-ray can only help boost the film's profile among film connoisseurs with its superb transfer (based on a new 4K restoration) and fascinating array of extras.



# Going home for the horror-days

Hold on, shouldn't it be called ...*Train of Terrors* rather than ...*House of Horrors*?

## → DR. TERROR'S HOUSE OF HORRORS

A group of strangers (Neil McCallum, Alan Freeman, Roy Castle, Christopher Lee and Donald Sutherland) sharing a train carriage get more than they bargain for when the mysterious Dr. Schreck (Peter Cushing) offers to tell their fortunes. What follows are five tales of terror featuring werewolves, killer plants, voodoo rites, a severed hand and vampires.

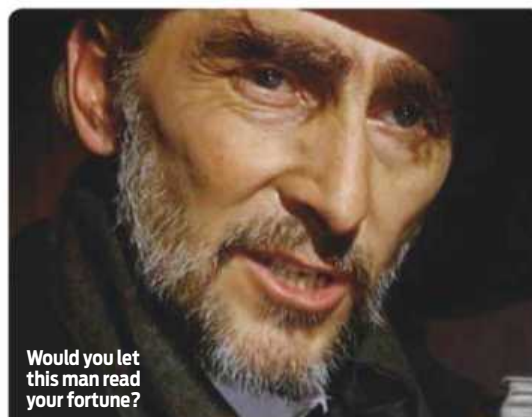
The first of Amicus' portmanteau horror films, 1965's *Dr. Terror's House of Horrors* is one of the most influential flicks of the era – its box office success establishing a template that the film company would rigidly adhere to over the following decade.

As is so often the case with this type of film, the quintet of *Twilight Zone*-esque stories it tells are fairly hit-and-miss. Thankfully, the good just about outweighs the bad, and even those that don't quite hit the mark still offer some sort of entertainment value – after all, it's not as if you get to watch disc jockey Alan 'Fluff' Freeman battling a killer weed every day of the week, is it?

**Picture:** While not without some source-related issues, the restoration of *Dr. Terror's House of Horrors* included on this Blu-ray looks rather impressive.

Shot on two-perf Techniscope, the 2.35:1-framed picture is particularly grainy, but this aspect of the image is well resolved by the disc's AVC encode. Colour reproduction is also very strong, with richly saturated greens and reds throughout.

As mentioned earlier, a few problems do remain. The voodoo sequence of the Roy Castle story looks considerably softer than the rest of the film and as



Would you let this man read your fortune?

such suffers from a slight drop-off in detail. Additionally, registration issues also cause problems for several shots in the film.

**Audio:** The dual-mono LPCM 2.0 soundtrack may not be particularly exciting from a technical point of view, but serves the dialogue-driven nature of this moody horror perfectly well. Given the rather restrained nature of the sound design, dynamics are in short supply – although the Roy Castle story livens things up a bit with its boisterous jazz performances.

**Extras:** There's a nice collection here. Director Freddie Francis joins moderator Jonathan Sothcott on an informative commentary track. Further information about the making of the film and its legacy can be found in Jake West's new 58-minute retrospective documentary *House of Cards*. Rounding things out are a 2012 interview with Christopher Lee about his career (47 minutes), the movie's original trailer and a stills gallery.



## HCC VERDICT

### Dr. Terror's House of Horrors

→ Odeon Entertainment  
→ All-region BD → £25 approx  
**WE SAY:** A handsome Blu-ray outing for this enjoyable and influential British horror anthology

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



# A devilishly good deal for fright fans

This affordable boxset showcases the highs and lows of the legendary horror series

## → THE EXORCIST: THE COMPLETE ANTHOLOGY

Few franchises are as wildly uneven as the one that span out of the critical and commercial success of William Friedkin's controversial horror masterpiece *The Exorcist* (1973).

While there may be a half-decent idea at the heart of John Boorman's *Exorcist II: The Heretic* (1977), it's been buried under so much pseudo-scientific technobabble and terrible dialogue that you'd be hard-pushed to realise it. Still, viewed in the right frame of mind, it's one of the best bad movie experiences you can ever have.

Wisely ignoring that film altogether, William Peter Blatty's belated *Exorcist III* (1990) finds the author of the original concocting an underrated thriller about a series of murders that appear linked to the events of the first film. It's just a shame that production company Morgan Creek couldn't resist meddling and forced a slightly silly finale onto the film.

Speaking of meddling, next up is Paul Schrader's *Dominion: Prequel to The Exorcist* (2005). This intriguing depiction of Father Merin's first encounter with the demon Pazuzu was apparently too low-key and thoughtful for Morgan Creek, which binned the film and hired Renny Harlin to direct a flashier, more FX-led version of the story. Only after Harlin's lame-brained *Exorcist: The Beginning* (2004) flopped at cinemas did the studio give Schrader the money to finish his far more effective version.



Parallel parking wasn't her strong point



**Picture:** While *The Exorcist* has had plenty of attention lavished on its Blu-ray presentation, the sequels are far more modest affairs. That said, the only really problematic

Full HD encode is that of *Exorcist II...* which looks muddy and bereft of detailing.

**Audio:** Bar the Extended Director's Cut of *The Exorcist* and *Exorcist II...*, the films all boast DTS-HD MA 5.1 soundtracks. Of these two, the former opts for a DTS 6.1ES track, while the latter sticks with a surprisingly lively DTS-HD MA mono mix.

**Extras:** *The Exorcist* is loaded with bonus features and is offered in two different cuts. Extras on the others are minimal, although the commentaries for the two prequels are enlightening affairs.

### HCC VERDICT

#### The Exorcist: The Complete Anthology

→ Warner Bros. → All-region BD  
→ £30 approx

**WE SAY:** An inexpensive way of picking up this uneven horror series

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

## Edgar Allan Poe's Black Cats

Arrow Video → Region A/B BD & R1/R2 DVD → £33 approx



Edgar Allan Poe's 1843 short story provides the (loose) inspiration for two very different films collected together in this boxset. Sergio Martino's *Your Vice is a Locked Room and Only*

*I Have the Key* (1972) integrates elements of Poe's story into a sensual slice of *giallo*, while Lucio Fulci's *The Black Cat* (1981) is arguably even further removed from the source with its tale of a murderous moggy wreaking havoc in an English village. Bonkers they may be, but that hasn't stopped Arrow lavishing plenty of TLC on both films, in the form of new restorations and scores of fascinating extras (including Poe's original story).



## Maggie

Universal Pictures → All-region BD  
£15 approx



Ask anybody what they'd expect from a zombie film starring Arnie and the answer would most likely be

a cross between *World War Z* and *Predator*. Yet this understated drama defies expectations by using the setup to explore the strained relationship between a father (Schwarzenegger) and his dying teenage daughter (Abigail Breslin). It's affecting stuff, driven by two powerful performances from its leads. On top of its moody 2.40:1 1080p visuals and DTS-HD MA 5.1 audio, this Blu-ray offers a director's commentary, a *Making of...*, a deleted scene and two interviews.



## We Are Still Here

StudioCanal → Region B BD  
£15 approx (Zavvi exclusive)



A couple haunted by the memory of their dead son find that their new home has some ghosts of its own in this

unusual genre flick. While the first two acts play out like an even more sombre and contemplative version of a *Ti* (*The Innkeepers*) West film, the finale switches up the tempo and sees it go full-on Fulci as it splashes blood all over the place. Not the most bombastic AV experience, the Blu-ray's 2.40:1-framed 1080p encode and DTS-HD MA 5.1 audio are faithful to the film's muted aesthetic. Extras take the form of an informative chat-track and a short *Making of...* featurette.





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**BLU-RAY PLAYERS** Which deck rules the roost? **PROJECTORS** It's time to blow up your video!  
**AV RECEIVERS** 5.1, 7.1, 9.2 – we've got all the options covered **SPEAKERS** Killer surround sound setups  
for all rooms and budgets **PVRs** Including super-slim Freeview boxes and Sky+HD **AND MORE!**













## HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

## TOP 10 TELEVISIONS

All prices are approx and may have changed

- 1**  **Sony KD-75X9405C** → £7,300 ★★★★★  
 This giant TV offers an irresistible blend of top-spec Ultra HD visuals and bassy, immersive audio. The direct LED backlight provides nuanced contrast; HDR support is promised via an imminent firmware upgrade. *HCC #250*
- 2**  **Samsung UE65JS9500** → £6,000 ★★★★★  
 Not cheap, but that's the only real downer about Samsung's range-topper. The super-bright 4K panel is ready for incoming HDR/UHD BD content; performance is excellent. *HCC #246*
- 3**  **LG 55EG960V** → £3,800 ★★★★★  
 LG's second-gen 4K OLED display boggles with its black levels and detailing, and is a joy to drive via the WebOS 2.0 interface. No HDR support via HDMI, though. *HCC #250*
- 4**  **Panasonic TX-50CX802** → £1,500 ★★★★★  
 This 50-incher still packs Panasonic's premium processing and Smart skills. Performance is the best yet from the brand's LED stable, with excellent presets and backlight uniformity. *HCC #252*
- 5**  **Panasonic TX-50CX700** → £900 ★★★★★  
 4K needn't be the preserve of those with big wallets seeking big displays. This 50-incher impresses with its Firefox-powered UI, vibrant colours and slender design. *HCC #252*
- 6**  **Samsung UE55JS8500** → £2,300 ★★★★★  
 While shorn of some of the features of the JS9500 flagship (most notably the full-spec One Connect box), this step-down HDR set still packs a picture-quality punch. *HCC #251*
- 7**  **Philips 40PFT6510** → £480 ★★★★★  
 This Ambilight-toting, Android smart TV shows that regular Full HD imagery can still impress, helped by Philips' efficient processing and direct LED illumination. *HCC #253*
- 8**  **Sony KD-55X8505C** → £1,300 ★★★★★  
 With neither the large speaker array or ultra-slim design of more expensive Sony 4K TVs, this modestly-priced Android set's main attraction is its sharp, colour-rich visuals. *HCC #251*
- 9**  **Loewe Connect 55** → £2,800 ★★★★★  
 Superb video processing and onboard PVR functionality are the highlights of this 55in 4K screen, but the lack of UHD streaming services, and a clunky interface, disappoint. *HCC #249*
- 10**  **LG 65UF850V** → £2,500 ★★★★★  
 A good (but not brilliant) all-round package, mixing a 4K IPS panel, WebOS 2.0 interface and a sleek design. Image quality suffers from average blacks and fussy motion. *HCC #249*

## TECH INFO: TELEVISIONS



**What? No plasma?:** The TV market is now dominated by LED-lit LCD screens. Manufacture and sale of plasma display panels (PDPs), which previously came into play above 42in, has ceased. With LED comes newer technologies. 4K models with a native resolution of 3,840 x 2,160 should at least be on your audition list if you're thinking of a new display; curved models are a consideration if you want to impress the neighbours. Look out for sets claiming support for HDR content, which is part of the forthcoming UHD Blu-ray spec.



**Active or Passive:** At the beginning of the 3D era, most TVs featured the Active system that uses relatively expensive, powered 3D specs to deliver full-res images to each eye. Passive 3D TVs, which are now more common, have a filter over the screen and use non-powered specs with polarising filters. The glasses are cheap as chips, but the resolution of Full HD 3D is halved to 540 lines horizontally (but remains at 1,920 vertically). The same halving occurs with a 4K screen. Some brands offer both Passive and Active models, depending on the panel used. Glasses-free 3D, heralded by Toshiba's early ZL2 TV, hasn't caught on. The tech is still being worked on, though.

## TOP 5 BLU-RAY MOVIES

**Fast & Furious 7: Extended Edition**

A robust AV presentation (including bass-rich DTS-HD sonics) and good bonus features make this another essential purchase for fans of the stunt-packed motor franchise.

★★★★★

**Jurassic World**

Grab some popcorn and watch this enjoyable, SFX-laden dino romp. The soundmix, while only a traditional DTS-HD 7.1 affair, packs a prehistoric punch and the bright, high-contrast 2.0:1 visuals look great.

★★★★★

**Exodus: Gods & Kings**

This big-budget biblical epic from Ridley Scott doesn't capture the narrative highs of *Gladiator*, but dazzles with its set-pieces and looks and sounds astonishing on this hi-def platter.

★★★★★

**Mad Max: Fury Road**

It's back to the outback in this action epic that mixes a lean narrative with astonishing set-pieces. The disc's Dolby Atmos soundtrack is a delight, and image quality is pin-sharp. Instant reference status!

★★★★★

**Interstellar**

Christopher Nolan's monster-budget cerebral sci-fi is a real Blu-ray showcase, with its IMAX-shot footage deserving of the biggest screen you can find, and Hans Zimmer's score sounding simply stunning.

★★★★★



## Top 10 BLU-RAY PLAYERS

All prices are approx and may have changed

- 1**  **Oppo BDP-103D** → £600 ★★★★★  
 Oppo's first deck for two years was worth waiting for. The universal BDP-103EU featured a class-leading build and all manner of bonus goodies, including twin HDMI inputs. AV performance was faultless, and the onscreen menus superb. This newer model, the BDP-103D, adds Darbee Visual Presence processing for you to play with. HCC #228
- 2**  **Pioneer BDP-LX88** → £1,300 ★★★★★  
 The Japanese corp returns to the disc-playing high-end with a universal deck that weighs more than your AVR and drips with user tweaks and processing features. Stonking performer. HCC #246
- 3**  **Oppo BDP-105D** → £1,100 ★★★★★  
 This heavyweight deck builds upon the premium picture performance of the BDP-103D with a wealth of audiophile upgrades – if you're serious about music, check it out. HCC #234
- 4**  **Arcam FMJ UDP411** → £1,200 ★★★★★  
 Pristine visuals – including upscaled SD – and a classy sonic performance grant this Arcam instant appeal. The design and build is commensurate with the premium price tag. HCC #244
- 5**  **Sony BDP-S7200** → £220 ★★★★★  
 A Sony deck without the curious angular design, the BDP-S7200 offers SACD support, hi-res audio streaming and 4K upscaling that's worth investigation. Not too pricey, either. HCC #239
- 6**  **Cambridge Audio CXU** → £900 ★★★★★ NEW ENTRY  
 Styled to match the brand's other CX components, this universal deck matches its audio and video chops with plenty of features, including Darbee and HDMI switching. HCC #253
- 7**  **Pioneer BDP-LX58** → £500 ★★★★★  
 Short on 'net content and a bit slow in use, but these are minor complaints – this model (which ranks below the BDP-LX88) is a gorgeous, thoroughbred Blu-ray performer. HCC #250
- 8**  **Panasonic DMP-BDT700** → £500 ★★★★★  
 Claiming THX-certified 4K upscaling and HDMI 2.0 60p passthrough, this mid-range deck from Panasonic is a good partner for a modern display. Great audio option, too. HCC #237
- 9**  **Samsung BD-J7500** → £170 ★★★★★  
 This well-priced spinner offers twin HDMI outputs and multichannel phono audio for flexible system hookup, an appealing design, Smart features and solid AV chops. HCC #247
- 10**  **Panasonic DMP-BDT370** → £100 ★★★★★  
 A solid deck at a great price, the DMP-BDT370 packs 4K scaling and JPEG playback into its full-width design. Let down by the dated Smart platform, although VOD options are good. HCC #251

## TECH INFO: BLU-RAY PLAYERS

**Matching your deck to your AV receiver:** Blu-ray decks are designed to deliver top-notch images but Blu-ray is also about enjoying superior quality sound. When choosing a player, bear in mind the connectivity and decoding features of your AV receiver. If you're still using an older model that doesn't offer HDMI inputs, then you'll need a Blu-ray player with multichannel analogue audio outputs to enjoy decoded hi-res surround sound formats. Similarly, older but still HDMI-equipped receivers may not be able to cope with 3D video/4K output signals, in which case you'll need a deck with dual HDMI outputs – one channelling audio to your receiver amp, the other piping video direct to your TV.

**What about the PlayStation?:** Sony's console still represents an easy path to hi-def heaven. For a low-budget home cinema system, the £150 PS3 Super Slim makes a decent choice – especially if you like playing games. Control via a joypad is a pain, though, and the console runs more noisily than most BD spinners. The more expensive PS4 is a much better gaming machine, and now available in a 1TB version.



## DEMO DELIGHT

**Tomorrowland:** The first flick released theatrically in the wide colour, HDR-toting Dolby Vision format, this bonkers sci-fi looks sumptuous on 1080p BD – colour saturation and detailing of the 2.20:1 encode is exemplary.



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## TOP 10 PROJECTORS

All prices are approx  
and may have changed

- 1 Sony VPL-VW300ES → £5,800 ★★★★★**  
 Auditioning the newest, most affordable member of Sony's 4K range is a no-brainer. It loses a shade of brightness and the lens memory feature of its VPL-VW500ES stablemate, but retains the cinematic verve. Top of the class. *HCC #243*
- 2 Epson EH-LS10000 → £6,000 ★★★★★**  
 Debuting a laser light source (30,000 hours) and Epson's 4K enhancement processing, this large chassis model is a cinematic triumph. Essential audition for a dedicated room. *HCC #247*
- 3 JVC DLA-X500R → £5,000 ★★★★★**  
 Armed with a more adept third generation of the brand's proprietary e-shift technology, the X500R continues JVC's winning ways – contrast rich, sharp and full of tweaks. *HCC #232*
- 4 Epson EH-TW7200 → £1,900 ★★★★★**  
 Priced to appeal to those unable to dabble in the £3,000 market, Epson's mid-ranger is a great purchase. No frame interpolation on offer, but colours, contrast and brightness impress. *HCC #232*
- 5 Optoma HD50 → £1,000 ★★★★★**  
 With a retweaked user interface that improves upon previous Optoma light-cannons, the 12V-trigger-toting HD50 is a brilliant budget buy. *HCC #239*
- 6 Optoma HD91+ → £3,500 ★★★★★**  
 This LED/DLP Optoma claims a 20,000-hour lamp life. Setup features include a 1.9x zoom and image quality is generally excellent. Close in price to JVC's 4K eShift line, however. *HCC #252*
- 7 BenQ W1070+ → £650 ★★★★★**  
 An accomplished low-budget DLP model, the W1070+ offers ISF-certified calibration and a 12V trigger in conjunction with a sharp, bright, detailed performance. Bit of a bargain! *HCC #240*
- 8 Philips Screeneo HDPI590 → £1,500 ★★★★★**  
 Neatly designed, the Screeneo offers ultra-short throw projection thrills, albeit at 720p (and the DVB tuner is SD). Good speakers and networking skills complete a nice package. *HCC #233*
- 9 ViewSonic PLED-W800 → £500 ★★★★★**  
 Portable (but not battery-powered) LED-lit PJ with 1,280 x 800 res. BDs look decent on a large screen, with nice colour punch, and it incorporates a useful media player. *HCC #247*
- 10 Acer H6520BD → £550 ★★★★★**  
 Offering a Full HD resolution and ready for 3D, this budget beamer is a decent no-frills option. No lens shift, and zoom is pegged at 1.1x. Images are bright and well-contrasted. *HCC #252*

## TECH INFO: PROJECTORS



**Installation:** Although projectors can be temporarily placed on a cupboard, stand or shelf situated at the rear of the room (use the adjustable feet on its base to level the image so that it aligns with the screen), a much better long-term solution is to mount it on your ceiling with an appropriate bracket. Projectors can be quite heavy, though, so it's important to ensure that the bracket is attached firmly – ideally, it should be secured to a joist. Position your PJ so that an imaginary line from its lens to the opposite side of the room hits the screen exactly half-way along its width. The location of your screen should therefore dictate where your projector is. A decent tape-measure or laser pointer will help you to determine the position.

**Throw distance:** Throw distance specifies the distance between the projector and screen for a focused image of given size. As the vast majority of projectors are equipped with a zoom lens, minimum and maximum throw distances are often specified – say, 3.01m to 6.08m for a 100in. 16:9 image. Shorter throw distances are ideal for smaller rooms, and longer ones for larger rooms. Simple.

**Throw ratio:** Sometimes, a manufacturer will quote a throw ratio rather than a throw distance. This is basically the throw distance divided by the image width. To get the projected image size, divide the distance between projector and screen by the specified figure. Once again, the inclusion of a zoom lens means that upper and lower figures are usually specified.

## Award-winning home cinemas

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**Top 10 SPEAKERS**
*All prices are approx and may have changed*


- 1**  



**Monitor Audio Gold 300AV → £7,150**  
★★★★★  
MA revamps its Gold Series and we pay serious attention. This big-ticket package excels across the frequency range, offers exquisite design and packs setup flexibility via the dipole/monopole FX surrounds. *HCC #251*
- 2**  



**Q Acoustics 3000 5.1 Cinema Pack → £700** ★★★★★  
A superior compact package with driver improvements over the previous 2000i series. The two-way cabinets and dual-driver sub combine to offer impressive audio for the money. *HCC #247*
- 3**  



**B&W 683 Theatre 5.1 → £2,750** ★★★★★  
The first step on the floorstanding ladder in B&W's speaker stable, the 600 Series incorporates new tweeter and bass driver designs and offers absurd value for money. *HCC #234*
- 4**  



**KEF R Series 7.1 → £6,500** ★★★★★  
A 7.1 array mixing dipolar and direct surrounds, this authoritative package takes its cues from KEF's Blade concept speaker and offers faultless, largescale home cinema sonics. *HCC #217*
- 5**  


**Artcoustic Spitfire SL 7.2 → £17,000** ★★★★★  
Slimmed-down cabinets now even easier to install on-wall or behind a screen, with a multi-driver design ensuring they're easy to drive to high SPLs. Ideal for dedicated rooms. *HCC #233*
- 6**  


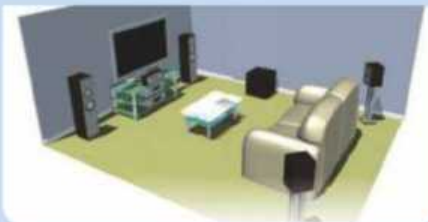
**Wharfedale Diamond 220 HCP → £850** ★★★★★  
This package offers a lot for less than a grand – two-way surrounds, a potent three-driver centre channel and agile subwoofer. Great movie sound and excellent build. *HCC #248*
- 7**  


**Pioneer S Series 5.0.4 → £2,150** ★★★★★  
With Atmos-upfiring drivers incorporated into the cabinets (both the front floorstanders and surround standmounts) this is a neat way of upgrading your system. Bassy, fulsome sound. *HCC #247*
- 8**  


**SVS Prime Satellite 5.1 → £1,000** ★★★★★  
These satellites are the smallest speakers from the US marque – but still sizable enough to deliver an impressive full-range performance. Quality subwoofer, too. *HCC #249*
- 9**  


**PMC Twenty Series 5.1 → £12,500** ★★★★★  
A classy option for those with an audiophile bent, the Twenty Series majors on an oh-so-expressive mid-range and supremely well-integrated bass. Not an impulse buy, though! *HCC #250*
- 10**  


**Tannoy HTS-101XP → £700** ★★★★★  
A great sub/sat option. Tannoy's coaxial drivers excel at treble details; the new dual-driver subwoofer delivers the bottom end with gusto. Decent styling, too. *HCC #252*

**TECH INFO: SPEAKERS**


**Centre speaker:** Handles most of the dialogue and onscreen effects. Should be positioned above or below the screen as close to it as possible. Of course, if you're using a projector screen, it should ideally be placed behind it.

**Front speakers:** Left and right speakers should be positioned either side of the screen, in line with the centre. Turn the speakers in slightly to face the listener if there isn't an even movement of sound across the front of the room.

**Subwoofer:** Can be positioned wherever it sounds best or can be tucked out of sight due to the non-directional nature of low-frequency signals. Be aware that close positioning in corners or next to walls can create a boomy effect.

**Surrounds:** Position alongside the listener, pointing in or slightly behind the ears for a good surround effect. The back wall is not a good position for surrounds – it is, in fact, where you should locate the sixth and seventh speakers (rears) in a traditional 7.1 array.

**DEMO DELIGHT**

**Mad Max: Fury Road:** This outback actioner comes complete with an inventive, detail-packed Dolby Atmos soundtrack that has to be heard to be believed. Music and atmospheric effects are regularly shunted into the height channels, the subwoofer puts in a serious shift, and object placement is remarkable. Play it loud!



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## TOP 10 AV RECEIVERS/AV PROCESSORS

All prices are approx  
and may have changed**Onkyo TX-NR3030** → £2,500

★★★★★

The current king of Atmos AVR, this 11-channel design enables four height speakers to be added to an existing 7.1 array with ease. Lithe on its feet and with exemplary steering, this is multichannel audio at its best. *HCC #245*

**Marantz AV8802A** → £3,350 ★★★★★

This 11.2-channel next-gen processor (Atmos, DTS-X and Auro-3D) is an obvious upgrade for a high-performance separates system. Luxuriant, natural sound quality. *HCC #253*

**Denon AVR-X7200WA** → £2,500 ★★★★★

Capable of being upgraded to DTS:X, and sporting HDCP 2.2 support, this Atmos AVR is as futureproofed as it gets. Only a nine-channel design, though. *HCC #248*

**Denon AVR-X5200W** → £1,700 ★★★★★

Offering Atmos – and Auro-3D via a paid upgrade – the Denon X5200W offers nine amp channels and 11.2 processing. Energetic sound and flexible setup. *HCC #243*

**Arcam AVR750** → £4,000 ★★★★★

If all you want from an AV receiver is vast power and effortless performance, this high-end 7.1-channel beast is tailored to you. Little bonus features beyond audio networking. *HCC #225*

**Yamaha RX-A550** → £550 ★★★★★

Only a 5.1-channel model – and subsequently not endowed with Atmos/DTS:X chops – the RX-A550 impresses with its audio performance, design and networking features. *HCC #252*

**Cambridge Audio CXR120** → £1,500 ★★★★★

This Brit-designed 7.2-channel receiver focuses on performance and ignores object-based audio and built-in Bluetooth. Sound quality is assured and construction is monstrous. *HCC #251*

**Onkyo TX-RZ800** → £1,050 ★★★★★

Feature-packed (DTS:X, HDCP 2.2) and sporting a new, clean design, Onkyo's mid-priced nine-channel AVR is easy to use and sounds sprightly, if a little short on aggression. *HCC #253*

**Pioneer VSX-930** → £500 ★★★★★

Operation could be smoother, but there's no doubting this bargain-priced 7.2-channel AVR (with Dolby Atmos) when it comes to precise multichannel delivery. *HCC #249*

**Sony STR-DN860** → £400 ★★★★★

No sign of Atmos or DTS:X support, but this budget Sony impresses in other areas. Setup and operation is the best in the business and it attacks movie mixes with gusto. *HCC #250*

## TECH INFO: AV RECEIVERS



**Tackling new heights:** A recent innovation in AVR circles is the introduction of Dolby Atmos, the object-based sound format that has taken off in commercial cinemas and is supported in the home by the likes of Onkyo, Pioneer, Denon, Marantz and Yamaha. This requires new height speakers in addition to a regular 'flat' 5.1 or 7.1 speaker configuration. The heights can either be physically mounted in/on your ceiling, or provided via up-firing reflective models. Setup can be complex, but the results are certainly impressive. Atmos-encoded Blu-rays are a bit thin on the ground, but you can use Dolby Surround post-processing with regular 5.1/7.1 soundtracks to get the most from your new AVR/speakers. Rivals to Atmos are Auro-3D, which uses height speakers in a different configuration, and the forthcoming DTS:X. Most AVR brands have already pledged support for the latter.

**How much power?:** Many of the mass-market AV receiver manufacturers are involved in a specifications race to see who can say their model is the most powerful, which can be confusing for consumers. For instance, both Krell's £7,000 S-1500 seven-channel power amp and Yamaha's £500 RX-V675 both claim 7 x 150W – the important part is that Krell's figure is into an eight-ohm load with all channels driven, and that Yamaha's is with one channel into a four-ohm load, which is hardly a real-world situation. The best advice is ignore the numbers game and get a demo of your desired AVR with the same, or similar, speakers that you intend to partner it with.

## TOP 5 BONUS FEATURES

**Kingsman: The Secret Service Revealed**

A lengthy (92-minute) doc that is a must-watch for fans of the kinetic British comic book adaption, this looks back at the movie's origins and delves deep into its production.

★★★★★

**The Science of Interstellar**

From black holes to the search for planets that can support life, this engrossing 50-minute doc (narrated by Matthew McConaughey) explores the scientific rationale that lies at the heart of the recent sci-fi epic.

★★★★★

**Keepers of The Covenant: The Making of Exodus**

Another great *Making of...* doc supporting a Ridley Scott flick, this 153-minute, seven-part feature covers everything you could possibly want to know about the film's production.

★★★★★

**Eaten Alive**

Lurking in the extra features on 88 Films' Blu-ray release of *Zombi Holocaust* is this fascinating 85-minute documentary exploring Italian cinema's love affair with cannibal horror flicks.

★★★★★

**Talking Fast**

This 30-min interactive feature on the *Fast & Furious 7: Extended Edition* Blu-ray works well in place of a regular commentary. Motor-mouth director James Wan is a great host as he discusses key production aspects.

★★★★★



Top 10 SUBWOOFERS

All prices are approx & may have changed



**SVS SB-2000** → £650 ★★★★★

This follow up to the SB-1000, which incorporates a new 12in driver and revamped Sledge DSP amplifier, offers immense value for money. A mid-sized woofer that imbibes your Blu-rays with potent LFE, the SB-2000 sounds quick and taut, and is a perfect introduction to what a truly good sub can accomplish. *HCC #233*



**REL 212SE** → £2,750 ★★★★★

Lush design joins engineering nous in this premium sub with two active 12in drivers supported by a pair of passive radiators. Loud, deep and impactful, your BDs are in safe hands. *HCC #246*



**JL Audio Fathom F212** → £5,900 ★★★★★

The US brand arrives in the UK in style – this 2 x 12in, 3,000W brute not only looks gorgeous, it's capable of a mindblowing performance. Got a big room? Get one of these! *HCC #214*



**REL S-5** → £1,600 ★★★★★

A step up from REL's affordable T series, this 12in model is large and weighty, with a performance level to match. Fast and tight but capable of dropping very low indeed. *HCC #234*



**Bowers & Wilkins PVID** → £1,200 ★★★★★

One of the coolest-looking subs on the planet, B&W's PVID uses DSP trickery to craft an opulent low-end performance. The touch-sensitive OLED display is pure class. *HCC #212*



**Eclipse TD520SW** → £3,000 ★★★★★

This twin 8in woofer, driven by ICEpower amplification, aims for ultimate speed and tone – and succeeds. Simply put, the TD520SW is worth every penny of its asking price. *HCC #249*



**BK Electronics P12-300SB-DF** → £475 ★★★★★

Bass heads can get outrageous value for money in the shape of BK's overperforming 12in sub. A front-firing model is also offered, and other finishes knock the ticket down to sub-£400. *HCC #247*



**JL Audio E-Sub e112** → £2,050 ★★★★★

This 12in, 1,500W model from JL Audio's 'entry-level' line seems pricey, but its performance, design and tuning options make the investment oh-so worthwhile. *HCC #240*



**SVS PB-2000** → £750 ★★★★★

The ported sibling to the SB-2000, this woofer uses the same driver and amp arrangement, but in a far larger cabinet. Bass goes deeper, but not at the expense of finesse. *HCC #243*



**Artison Nano 1** → £800 ★★★★★

Artison's media room-friendly woofer tucks twin 6.5in bass drivers and a 300W amp into its compact frame. Bass extension isn't the deepest, but this is tight, fast and heaps of fun. *HCC #253*

TECH INFO



**Why use more than one sub?:** Using two subwoofers (or perhaps four) should, in theory, bring huge rewards in terms of bass performance. But remember that LFE is a tricky beast to control. Running two subs may simply double problems in your room like room boom and suck-outs, where outgoing and reflected bass sounds cancel each other out. If you have some flexibility in where you place subwoofers, trial and error may well throw up some interesting results. The acoustics wizard Floyd E Toole (his book *Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms* is fine bedtime reading) suggests one LFE sub to either side of the room may be best for accuracy while placing them in the front corners would be best for overall bass power. Yet there is no hard and fast rule as to what will work best for every room, and you may find that simply using one (large) subwoofer is preferable as it's the easiest to get sounding right.

DEMO DELIGHT

**Fury:** The DTS-HD 5.1 track of Brad Pitt's tank drama is truly a thing to savour, with the audio engineers striving hard to deliver a packed, detailed soundfield that puts you right in the action. And, with its frequent artillery explosions, it's no surprise to find the LFE channel getting a thorough workout. Shells hit deliciously hard with taut bass throbs, while the eponymous tank's rumbles will petrify your pets.

Top 5 CONSOLE GAMES



**The Witcher III: Wild Hunt**

RPG fans will lap this up. Combining a brilliant (if grim) narrative with great game mechanics, sparkly HD visuals and an exhaustive playing time, ...*Wild Hunt* makes *Skyrim* seem like a distant memory.

★★★★★



**Mortal Kombat X**

The king of beat-'em ups, NetherRealm Studios' newest entry into the popular franchise is strewn with gore, plays well and even lets you fight as the Predator if you fork out for the DLC upgrade...

★★★★★



**Batman Arkham Knight**

The concluding part of Rocksteady's Batman trilogy gives players an immense world to explore – everything here is bigger and better than before – and the moody, cinematic visuals are a treat for your display.

★★★★★



**Metal Gear Solid V: The Phantom Pain**

Definitely in the running for game of the year, this open-world stealth/actioner dazzles with its breadth, interaction, flexibility and lush visuals. A fitting end to the series.

★★★★★



**Dragon Age: Inquisition**

Finished with *Skyrim*? Then pick up this third instalment in the *Dragon Age* fantasy RPG series. A great-looking title, with plenty of side-quests littered around its vast open world to keep you adventuring for hours.

★★★★★

## TOP 10 ACCESSORIES

All prices are approx and may have changed

- 1  **KEF R50 → £600 ★★★★★**  
KEF's Dolby Atmos-enabled reflective modules are a smart choice for anyone looking to beef up their speaker system. Using the company's Uni-Q point source drivers pays real dividends, enabling full-range sonics that reach deep into your cinema room. Styling and build quality are first rate. £600 gets you a pair – you'll soon want four... *HCC #252*
- 2  **Devolo dLAN 650 Triple+ starter pack → £120 ★★★★★**  
This package makes Powerline networking fast (claimed at up to 600Mbps) and easy. The three-port Ethernet extender is sleekly designed, and provides a regular plug socket, too. *HCC #239*
- 3  **Dune HD Base 3D → £250 ★★★★★**  
A media player for the AV enthusiast. Full-width and fully-featured, it provides support for 3D BD rips and much more, with a slick user interface and plenty of connectivity. *HCC #235*
- 4  **Amazon Fire TV Stick → £35 ★★★★★**  
Half the price of the standalone Amazon Fire box, this HDMI stick outguns its Chromecast and Roku rivals with more potent processing and a slicker UX. A brilliant add-on to any TV. *HCC #248*
- 5  **Samsung WAM7500 → £500 ★★★★★** NEW ENTRY  
Also known as the R7, this addition to Samsung's multiroom system delivers authentic omnidirectional sonics via its super-stylish oval-shaped enclosure. Expensive, but excellent. *HCC #253*
- 6  **QNAP HS-251 → £300 ★★★★★**  
Adding HDMI connectivity to a NAS device is surprisingly useful – and this slim-line model from QNAP is styled to grace your living room. Flawless media playback and responsive. *HCC #248*
- 7  **Now TV → £15 ★★★★★** NEW ENTRY  
Among the new tricks of this second iteration of Sky's compact streamer are 1080p output, microSD and USB inputs and a faster processor. And it's still ridiculously affordable. *HCC #253*
- 8  **Sony SRS-X11 → £60 ★★★★★**  
An affordable palm-sized Bluetooth speaker with internal rechargeable battery, Sony's SRS-X11 is supremely portable and sounds decent for the money. A neat little gizmo. *HCC #249*
- 9  **WeTek Play → £95 ★★★★★**  
An Android-based media player that can be easily rebooted with open-source operating systems. The result is impressive flexibility. Additional tuner options bring PVR fun. *HCC #252*
- 10  **Sony PlayStation 4 → £350 ★★★★★**  
The PS4 offers a killer gaming experience, with the under-the-hood power resulting in great-looking games. 3D Blu-ray playback has now been added via firmware. *HCC #229*

## TECH INFO: MEDIA PLAYERS



**What about my TV?:** Most flatscreen TVs from the major brands (Sony, Samsung, Panasonic, LG, Toshiba and Sharp) also incorporate media player functionality, using Ethernet or Wi-Fi to stream from your home network, or from plugged-in USB drives. Most modern Blu-ray players offer this, too. However, file support is rarely as extensive as on dedicated devices from the likes of Western Digital and A.C. Ryan, and our experience shows some are more adept at playback from USB than over a network. Nor (obviously) is a TV or BD player portable. If your media collection extends beyond JPEGs and MP3s into lossless audio rips and esoteric HD video formats, then a standalone player is a good investment.

**Storage:** You can, if you really want, store all your files on a plethora of USB drives, or on your PC, but it's best to get a NAS (Network Attached Storage) device for simplified sharing of your media across a network with



multiple players, such as one from Netgear's ReadyNAS range (pictured). These dedicated devices often offer RAID array file backup, and are managed via browser software. Storage capacity can be anything from 1TB to 12TB and beyond.

## TOP 5 BLU-RAY/DVD BOX SETS

**Hellraiser: The Scarlet Box**

This set ignores the inferior DTV sequels to collect the first three movies in the Clive Barker horror franchise, and offers beautiful restorations plus plenty of in-depth bonus material. Limited to 5,000 copies – be quick!

★★★★★

**The Wire: The Complete Series**

The award-winning war-on-drugs drama hits Blu-ray reframed at 1.78:1 (it was originally broadcast at 1.33:1) and looking good. An 85-minute Q&A is among the extras.

★★★★★

**The Long Good Friday + Mona Lisa**

Two of Bob Hoskins' most iconic roles presented in an extras-packed boxset and given thoroughly impressive HD transfers – both look wonderfully filmic.

★★★★★

**The Avengers: The Complete Series Five**

For this 1967 24-episode run, agents Steed and Peel gallivant around in gaudy colour rather than black-and-white, and image quality on this seven-disc set is superb.

★★★★★

**The Walking Dead: The Complete Fifth Season**

The hit US series shows no signs of fatigue in its fifth year, putting its characters through the ringer in a brilliant, drama-packed season. DTS-HD MA 7.1 mixes help bring the scares.

★★★★★



## Top 10 SOUNDBARS &amp; SOUNDBASES

All prices are approx  
& may have changed

- 1 **Canton DM100** → £530 ★★★★★  
This Bluetooth soundbase speaker follows in the footsteps of previous Canton models by offering an assured 2.1 performance, here delivered by an eight-strong array of separate tweeters, mid-range and bass drivers in a 1m-wide enclosure. It's therefore ideally suited to the large screens of today's 4K/UHD world. Wonderful build quality, too. *HCC #253*
- 2 **Sony HT-XT3** → £450 ★★★★★  
A great-sounding soundbase blessed with HDMI connectivity, HDCP 2.2, Wi-Fi, Bluetooth, multiroom support, screen mirroring and app control. There's little to complain about. *HCC #250*
- 3 **Yamaha YSP-2500** → £800 ★★★★★  
An HDMI-switching 'sound projector' using Yamaha's Beam tech to craft impressive surround sonics from its drivers. Efficient sub, plenty of detailing and fun/useful app control. *HCC #243*
- 4 **Cambridge Audio TV5** → £300 ★★★★★  
Twin 6.5in bass drivers lend the TV5's sound some decent low-end heft, but not to the detriment of the rest of the soundstage. An enjoyable, balanced listen. Easy to use. *HCC #245*
- 5 **Q Acoustics Media 4** → £400 ★★★★★  
A no-nonsense offering from the speaker specialist, which ignores HDMI inputs and daft DSP modes in favour of creating a nuanced, solid 2.1 soundscape. *HCC #238*
- 6 **Monitor Audio ASB-2** → £1,000 ★★★★★  
This premium proposition marries Monitor Audio's C-CAM drivers with AirPlay and DLNA music streaming. Performance is exemplary – powerful and polished in equal measure. *HCC #229*
- 7 **DALI Kubik One** → £800 ★★★★★  
The Danish speaker brand brings a slice of glamour to your setup with this stylish soundbar. No HDMI or digital decoding but it packs a tight, lively and nuanced sound. *HCC #248*
- 8 **Philips Fidelio B5** → £450 ★★★★★  
Detachable battery-powered side speakers let you enjoy both genuine surround sound and straight 2.1 (there's a wireless sub). And each speaker offers Bluetooth hookup. Innovative. *HCC #249*
- 9 **Arcam Solo Bar/Sub** → £1,300 ★★★★★  
This pricey combi from audio specialists Arcam delivers a heavyweight, pristine 2.1-channel performance. Four-in, one-out HDMI (including 4K passthrough) is welcome. *HCC #249*
- 10 **Orbitsound A70** → £500 ★★★★★  
Not overly specified – there's no HDMI, for instance – but this elegant 'bar/sub combi just about justifies its price tag with an enveloping and very well-balanced performance. *HCC #251*

## TECH INFO: TV PLATFORMS



## TV addicts – go free, or pay-to-view?:

The landscape of the UK television industry has changed hugely in the last decade. The analogue switch-off has created a competitive market in free-to-air platforms, while Sky and Virgin Media are squaring up to the likes of EE TV, Amazon Prime and Netflix. Deciding which service is right for you can be complex, and you may find your needs are best catered for by a combination.

**Sky+HD:** The long-running satcaster offers a plethora of HD channels, with content including recent movie releases, live sports and sought-after US shows. Hardware options include the 2TB dual-tuner PVR.

**Virgin Media TiVo:** The cable giant offers a three-tuner PVR (1TB) with intelligent TiVo recording tricks, catch-up apps (including Netflix and Spotify), and over 240 channels (depending on package). Premium Sky content can be added on a monthly basis.

**Freeview:** The common option when it comes to TVs and set-top boxes. Freeview offers 13 HD channels (depending on regional roll-out) plus SD and radio. No contract fee.

**Freesat:** Satellite service offering a similar – but not identical – channel lineup to Freeview, delivered to your HD flatscreen via a dish but without a subs cost. As with Freeview, budget-priced STBs are available.

**YouView:** This relatively new kid on the block integrates the UK's main catchup portals directly into a backwards EPG. Again, channels are broadly similar to Freeview and there's no contract. Humax (PVRs) and Sony (TVs) are leading the hardware charge.

## Top 5 BACK-CATALOGUE BLU-RAYS

**Charlie Chaplin: The Mutual Comedies**

Exquisite restorations of the 12 shorts that the little master made for the Mutual Film Corporation in 1916/17. And this two-disc BD comes with some worthwhile bonus bits.

★★★★★

**Blood and Black Lace**

Mario Bava's genre-defining 1964 slasher makes its hi-def debut with a dazzling new 2K restoration that really gets the best out of the film's bold colour palette, alongside an exhaustive array of supplementary features.

★★★★★

**Goodfellas: 25th Anniversary Edition**

As far back as we can remember we always wanted a new 4K restoration of this Martin Scorsese gangster classic. And now we have one, with some new extra features, too.

★★★★★

**The Third Man**

StudioCanal takes a second stab at releasing this celebrated 1949 Brit-noir starring Orson Welles, rewarding buyers with an excellent image taken from a 4K restoration plus some new documentary material.

★★★★★

**The Day The Earth Caught Fire**

The highlight of the BFI's 'Sci-Fi: Days of Wonder' festivities, this stunning Blu-ray restoration should introduce this underrated British disaster flick to the wider audience it deserves.

★★★★★

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## TOP 5 PVRs


**Virgin Media TiVo, £subscription**

This triple-tuner PVR offers ultimate recording flexibility, useful features – you can undelete deleted shows! – and awesome TiVo functionality. A no brainer if you're in a cable area

★★★★★


**Sky+HD, £subscription**

Sky's channel choice is second-to-none and its twin tuner 2TB PVR is a perfect partner. The recent EPG tweak is welcome and Anytime (the push VOD service) is brilliant for catching up on new movies

★★★★★


**Humax HDR-1100S, £190**

Freesat Freetime PVR that impresses with its usability, VOD options and form factor – Humax's small, white box will slot into any kit rack. We tested the 500GB version – 1TB and 2TB models are also available

★★★★★


**Humax DTR-T4000, £subscription**

This YouView-based PVR is required to get BT Sport's new Ultra HD channel – available to those with BT fast fibre and a BT TV sub. Easy to use and with 1TB of storage

★★★★★


**EE TV Smart Box, £subscription**

This quad-tuner 1TB PVR, from the mobile/broadband corp, offers innovative Replay 24-hour channel recording and great Smart device streaming. Needs more catch-up though

★★★★★

## TOP 5 HEADPHONES


**Sony MDR-HW700DS, £800**

Comfy cans supplied with an HDMI surround processor, enabling multichannel audio to be fed to a virtual 9.1-channel soundstage. The effect is superb – great for late-night listening

★★★★★


**Oppo PM-1, £1,100**

Audiophile-grade, using planar magnetic driver designs, and with a lush design and build. The sound quality of the PM-1s is superb, so while these are undoubtedly costly, buyers won't be disappointed

★★★★★


**Lindy Croma NCX-100, £100**

A cost-effective domestic option and great for travelling, these noise-cancelling 'phones (which can also be used as a normal passive design) feature a pleasant, balanced sound

★★★★★


**PSB M4U1, £220**

Aimed at both home and on-the-move use (and supplied with a carry case and two cable options), the M4U1s offer solid bass response and impactful highs. Build quality is good, as is comfort

★★★★★



NEW ENTRY

**Beyerdynamic T70, £330**

Closed-back cans with excellent weight distribution for a comfy fit and a sound that doesn't put a foot wrong. These motor through movie soundtracks with vigour, clarity and a solid low-end

★★★★★

## TOP 5 SYSTEMS


**Panasonic SC-BTT505, £600**

Two-way driver arrangements in these grown-up looking speakers (plus a dizzying range of features) make this a great purchase. Big, dynamic sound, with strong dialogue

★★★★★


**Samsung HT-J7750W, £800**

Samsung's top-dog in its 2015 lineup is similarly styled and specc'd to last year's H series model. It has a powerful, dynamic sound, but is a little rough around the edges

★★★★★


**Harman/Kardon BDS470, £650**

Harman's 2.1 system eschews 'net TV and streaming features, but majors in heavyweight build quality and solid AV performance. We tested a 2.1 iteration – 5.1 is also available

★★★★★


**LG BH8220B, £650**

With its silver finish, this is a suitable one-box system to partner with LG's flatscreen TVs, with a commendable, if slightly lacking in HF finesse, sound. Additional features including CD-ripping to USB. Handy

★★★★★


**Onkyo HT-S7705, £650**

This Atmos-capable AV receiver and speaker package is an ideal entry-level setup for a forward-looking system. Loaded with features (including Wi-Fi and Bluetooth). Just add a BD deck and you're sorted

★★★★★

# HOME CINEMA

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## → IN THE NEXT ISSUE

**2015 Movie Awards:** We round up our favourite Blu-ray and DVD releases of the last year

**Amazon vs Netflix** Which streaming service rules the roost?

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## → HARDWARE

The finest AV kit of 2015, including: Samsung UE65JS9500 Epson EH-LS10000 Q Acoustics 3000 5.1 REL 212/SE Sony HT-XT3 DALI Kubik One Panasonic TX-50CX802 BT Sport UHD PVR PLUS News, software, opinion, AV rooms and more!

CONTENTS SUBJECT TO CHANGE – BUT ONLY FOR THE BETTER



# AV AVENGER

Want proof that the last page of a magazine is where the rules are broken?

**Steve May** teases next year's 3D sound war by discussing whippets and donuts...

**I'VE FINALLY HEARD** DTS:X and it's X-tremely X-citing. The new object-based audio format for movies and music is being positioned as a rival for Dolby Atmos, offering a similar height canopy and fancy image steering. However, despite being teased at the 2015 CES, it's been largely unheard outside a few select demos in the States (such as the one enjoyed by my colleague Martin Dew – see p24). Most recently it was played for trade visitors to the custom install-focused CEDIA Expo in Dallas.

I didn't have to travel to Texas though, just Epsom in Surrey. Custom install distributor AWE had acquired a beta version of the firmware to demo in its recently completed Dolby Atmos home theatre. I was there faster than a whippet in a side car.

Loaded onto a Denon AVR-X7200WA AV receiver and delivered via a 7.5.4 KEF speaker array (yes, that's five Ci3160RLb in-wall subs), with a little help from an additional Marantz MM8077 seven-channel power amp, I got to audition a wide selection of material. I left wanting more. And sometimes less. If you've heard (or indeed have) Dolby Atmos, you'll know there can be big difference between surround sound (5.1 essentially) and immersive audio (5.1.2/4). Think donut with a hole and donut with jam....

## Cinema sound is looking up

Content came from the 2015 *DTS Vol 19* Blu-ray, with clips picked to stress DTS:X imaging, which invariably meant a tonne of audio sprinkled from on high – the AWE cinema uses in-ceiling wide-dispersion KEF Ci200RR-THX speakers rather than reflective upfiring enclosures.

As with Dolby Atmos, DTS:X has an upmixer for DTS-HD MA content. This seems to work remarkably well. The opening sequence of *Dawn of*

*the Planet of the Apes*, which has regular DTS-HD Master Audio 7.1, cleverly had its forest ambiance placed convincingly high, while locking down all the monkeying around. Meanwhile, Young Adult SF franchise *Divergent* benefits from a native DTS:X mix, a clip from which did a fine job of conveying the sense of drowning in a glass chamber – lots of dunkin' and glugging before the tomb shattered and splattered around. **There was an intimacy about the presentation which was both startling and suitably uncomfortable.**

But there are caveats. Psychoacoustically, immersive audio can literally give the impression that you're being pressurised from above. This is probably why many Atmos Blu-rays actually use the height component quite sparingly.

One of the clever things about DTS:X is that the renderer adapts to your speaker layout. This means it can work with an Atmos system quite happily.

It's way too early to debate the pros and cons of the rival systems, though: there's just not enough to go on. One early thought is that the DTS:X content plays louder than Atmos, a difference which harks back to the early days of first-gen 5.1. I've no doubt there's an epic battle looming with Dolby Atmos, but it'll probably be fought at workflow level rather than in your home cinema, and be dictated by studio loyalties/contracts.

And sometimes the next big thing isn't always the next best thing. I'm of a mind that a good 7.1 setup is superior to Atmos-style 5.1.2. I'm acutely aware of the loss of the back rear speakers. Still with DTS:X firmware expected to debut January 2016, there's little doubt that AV is about to sound a whole lot more interesting. Krispy Kremes anyone? ■

*Set up for DTS:X? Or is a traditional speaker array all you need? Let us know: email letters@homecinemachoice.com*

**Steve May's** diet of donuts for breakfast, lunch and dinner means that by bedtime he looks, sounds and even smells like the Honey Monster







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